

**An investigation into staff and pupil perceptions of
environmentally responsible actions in an
Eco-School**

by

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Abstract

Environmental education initiatives such as the Eco-Schools programme, attempt to help young people become informed about the impact of climate change, to participate in sustainable activities and to empower them to lead actions. An Eco-School seeks to integrate sustainability into everyday school life and the curriculum whilst encouraging the involvement of pupils, staff and parents in developing environmental awareness. With this as the context, the study aimed to investigate the environmental perceptions, beliefs and actions of staff and those of pupils in an Eco-School. Additionally, it aimed to explore the influence of the Eco-Schools ethos on the beliefs and actions of staff and pupils. This qualitative, ethnographic study entailed gathering data from a Catholic Eco-School in the Northwest of England over a period of one year. In addition to the use of observation, documentary evidence and questionnaires, staff (both teaching and non-teaching) and pupils (aged 9-10 years) participated in one-to-one interviews.

Using the lens of social practice theory, the data revealed the differentiated skills, reasoning and beliefs of participants regarding practices designed to develop environmental responsibility in the school. It was found that changes to practices had taken place due to differing beliefs and understandings. These had influenced participants' performance of routines central to the practices.

The findings contribute towards the understanding of pupil perceptions of environmental responsibility in an Eco-School and their competency to provide ideas that could be used to reflect on, challenge and develop environmental practices. Although it was clear that pupils were able to articulate their thoughts concerning the strengths and weaknesses of the Eco-Schools programme, it seemed they seldom had occasions to share their thoughts and contribute towards refining practices. As a result, the school was failing to benefit from the valuable pupil perceptions necessary to develop the effectiveness of environmental practices in school.

Furthermore, the findings enhance our understanding of pupil participation in the process of making environmental decisions. It was evident that staff valued the role of pupils as participants in environmental actions and target-setting, yet there were limited opportunities for pupils to increase their involvement and to develop their decision-making skills. The study has shown that the school overall facilitated a largely passive involvement of pupils, positioning them at a relatively low level of Hart's Ladder of Participation (1992), rather than providing meaningful opportunities for them to engage in decision-making and changing practices. This was a missed opportunity for the school to develop the skills and agency pupils would need to effectively tackle environmental challenges.

In addition, the study provides a new understanding of environmental responsibility within an Eco-School which had started to approach environmental education from a religious perspective. Although protecting the environment remained a key aim of the school, it seemed that the pupil-led Eco-Schools programme had become less important as the main approach to developing environmental awareness. This suggested a change of focus from a pupil-led environmental education programme which aims to empower pupils to lead the design, implementation and evaluation of actions, to one guided by the religious character of the school and principally reliant on cultural meaning to sustain practices. Although it was unclear if this would influence the nature of pupil actions, the findings extend our understanding of an Eco-School guided by religious obligations.

Overall, it was clear that pupils (and staff) were willing to offer insight into their perceptions of environmental responsibility. It is recommended that schools recognise how these views and understandings can be used to inform environmental practices and to develop their effectiveness. It is also recommended that all pupils are consulted and listened to, and are offered opportunities to become active participants in the process of environmental decision-making and planning in school to prepare them for the future.

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Dedicated to Mam and Dad.

Abbreviations

ABC	attitude-behaviour-choice
AuSSI	Australian Sustainable Schools Initiative
CAQDAS	Computer Assisted Qualitative Data Analysis
COP-21	21 st Conference of the Parties
DECs	Display Energy Certificates
EE	environmental education
EfS	Education for Sustainability
EL	environmental literacy
ELG	Early Learning Goal
ESD	Education for Sustainable Development
GT	Grounded Theory
GSC	Green School Certification
IPCC	Intergovernmental Panel on Climate Change
IWB	interactive whiteboard
MoEP	Ministry of Environmental Protection
Ofsted	Office for Standards in Education, Children’s Services and Skills
RE	Religious Education
SD	sustainable development
SDG	Sustainable Development Goals
SEEd	Sustainability and Environmental Education
UKNC-UNESCO	UK National Commission for the United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
WWF	World Wide Fund for Nature

Chapter 1

Introduction

International response to climate change

“The climate emergency is a race we are losing, but it is a race we can win.” The United Nations Secretary-General gave this stark account at the 2019 Climate Action Summit (United Nations, 2019a) before outlining the urgent actions needed to combat climate change.

This call for mitigation and adaptation in the face of the global threat of worsening human-induced climate change comes at a time of increasing numbers of wildfires, droughts, floods, thawing ice, shifts in the seasonal activities of species and lowered crop yields (Pachauri et al., 2014). In addition to overfishing, increased use of natural resources, pollution and slow progress regarding energy efficiency, the pressure on human and natural systems is unsustainable (Field et al., 2014). It is the long-term, challenging goal of many governments and voluntary groups to tackle climate change and protect the planet. One critically important response was the 2015 Paris Agreement, the legally binding treaty on climate change that was adopted by almost every country in the World to commit to protecting the environment. The Agreement links with the UN Sustainable Development Goals (United Nations, 2015) which aim to end poverty, build stronger economies and safer, healthier societies. More specifically, Goal 13 calls for signatories to seek measures to reduce their emissions and to find ways of making adaptations to manage the impact of a changing climate, whilst meeting sustainable development goals.

For the goals to stand any chance of being successfully addressed, a number of underlying supporting factors must be present. According to the United Nation’s Intergovernmental Panel on Climate Change (IPCC) these are *“effective institutions and governance, innovation and investment in environmentally sound technologies and infrastructure, sustainable livelihoods and behavioural and lifestyle choices”* (Pachauri et al., 2014, p. 26).

Education and climate change

Education is viewed as a critical component in addressing the issues arising from climate change. In fact, the United Nations Framework Convention on Climate Change (UNFCCC) determined that those countries who signed the Agreement should take responsibility for ensuring the public are aware of

the issues associated with climate change in a bid to make changes to their behaviour (United Nations 2019b). The UNFCCC reasoned that attitudes and behaviour can be changed through education. The Convention recommended that in school pupils learn about global warming, its impact and how to adapt to the changing climate.

It seems reasonable to suggest that schools are well-placed to provide environmental knowledge, offer modelled behaviours and develop awareness. Children spend an extensive amount of time in school and schools are able to model sustainability through a range of approaches (Higgs and McMillan, 2006). However, it is somewhat difficult to imagine how such a complex global issue can be translated into practical, relevant, and understandable measures that are applicable to young people and can lead them to engage in environmentally responsible practices. In response to this challenge, several organisations have developed environmental education (EE) programmes to foster an understanding of environmental responsibility and prepare pupils for living a more sustainable life. These groups include the Eco-Schools programme (Eco-Schools, no date, a), the World Wide Fund for Nature (WWF-UK, 2009) and the charity Sustainability and Environmental Education (SEEd, no date, a). In addition to the use of the curriculum to teach environmental topics, the programmes seek to develop young people's awareness of sustainability by encouraging pupils to participate in the formation of action plans, perform a range of sustainable activities, and monitor their progress. Environmental education initiatives such as these, are often popular with schools. So much so, that around 20,000 English schools, colleges and nurseries are registered with the Eco-Schools England (Eco-Schools, no date, b). Alternatively, schools may choose to engage in standalone initiatives to introduce pupils to environmental issues and actions. These include incentive-based schemes to walk rather than being driven to school or encourage pupils and staff to turn off lights in rooms around the school (The Pod, no date).

Within this context, the research centres on the perceptions of the staff and pupils of an Eco-School as they engage in environmentally responsible practices designed to reduce consumption and waste. There is an exploration of how they perceive sustainability, their own responsibilities and the beliefs, obligations and actions of others. In addition, there is consideration of the extent to which the Eco-Schools ethos, the setting and the beliefs of practitioners serve to influence practice.

The following section begins with an introduction to the personal interest behind the research followed by an introduction to the ethos and practice of schools seeking to develop environmental awareness.

Personal interest in environmental education, beliefs and behaviour of staff and pupils

Many of the features of life in a primary school are familiar to me because of my background as a former primary school teacher and later as a teacher trainer. As a teacher largely based in Year 5 in upper Key Stage 2 (ages 9-10), I consistently switched off the light when leaving a room, sorted resources for reuse or recycling and was mindful of water use for instance. It soon became apparent that many pupils were keen to employ similar behaviours and so it developed into a regular occurrence to have a variety of “monitors” tasked to close windows, shut down computers, turn off the interactive board and so on. Other pupils participated in these informal actions by switching off the classroom light or collecting resources for reuse or recycling. These types of routine, environmentally responsible actions were acknowledged and accepted, when the Headteacher provided recycling bins for whole school use and later went on to install energy saving devices, e.g. motion activated lighting. The acceptance of these actions, including the provision of resources, served to routinise environmentally responsible behaviours. However, the installation of motion-activated lighting also served to detach pupils and staff from the need to perform an energy-saving action. Having said this, my experiences suggested that by consistently demonstrating an informal, routine approach to reducing the consumption of energy and resources, together with the willingness of school leaders to provide facilities and support, these practices could be extended throughout the school.

Later, as a teacher trainer my work involved visiting dozens of primary schools in order to assess and support trainee teachers. During visits, informal observations suggested that environmentally responsible behaviours varied greatly from school to school. Some schools were registered Eco-Schools whilst others contained individuals keen to develop pro-environmental practice. Yet despite this variation, each school shared similarities in their informal approach to sustainability such as the presence of recycling facilities and notices to remind those leaving a room to switch off the light. Although it was noticeable that efforts had been made by schools to form environmentally responsible practices it was unknown how these efforts were perceived by staff and pupils and what had influenced their beliefs and actions.

Alongside my personal interest in staff and pupil perceptions of environmentally responsible actions, ideas for my research stemmed from Boeve-de Pauw and Van Petegem’s study of Eco-Schools and how effectively they developed environmental behaviour and awareness (2013a) and Winter’s exploration of the environmental attitudes of youths in Malaga and Devon (2008). The studies gave respondents aged 10-12 and 13-19, the opportunity to share their views (data collection methods

included questionnaires and interviews) and provided insight into the outcomes of environmental education programmes and the perceptions of young people. The involvement of these age groups is important because I believe that the ideas and thinking of pupils must be at the heart of environmental education if they are to successfully develop the skills they will need to tackle the effects of climate change. Although the good intentions of environmental programmes and initiatives are evident, it is important to remember that pupils are the key participants in environmental learning (Barratt Hacking et al., 2007). Pupils can provide insight into the programmes and given the opportunity, share their thoughts for making changes to practice.

In order to further explore these elements, my thesis focuses on the experiences of primary school children and their teachers as they make sense of the issues surrounding sustainability. More specifically, the study focuses on a Roman Catholic primary school registered as an Eco-School, and investigates the environmental beliefs, perceptions, routines and behaviour of staff and pupils involved in the practice of raising awareness of environmental issues and performing environmentally responsible actions.

The following sections (*Eco-Schools focus* and *School timetables under pressure*), draw on my insight as a former teacher to explain the key characteristics of the primary school setting, in an effort to introduce the context of the study.

Eco-Schools focus

Schools that have registered with the Eco-Schools programme aim to demonstrate their commitment to sustainability by adhering to various environmentally conscious criteria (Eco-Schools, no date, c). This includes the formation of an Eco-Committee, an Environmental Review and the prominent positioning of the Eco-Board and Action Plan. This display outlines the school's Eco-Code, targets and achievements and serves as a visual reminder of the sustainable ethos of the school.

Forming practices to reduce waste and conserve energy are key elements of a registered Eco-School. Staff and pupils are expected to be mindful of their actions due to regular Eco-Committee communications to inform and involve the whole school of their plans, targets and actions. Additionally, staff recognise they must work within strict budgets and so the routine practice of carefully regulating the consumption of resources is a common feature of classrooms. This type of thrifty behaviour forms part of the implicit, taken-for-granted expectations of many primary school classrooms. The foundation of many common classroom rules centres on careful distribution of resources, the collection of items that may be useful at some point, e.g. scraps of textiles, used cereal

boxes and empty plastic containers, plus the “scrap paper” drawer found in many classrooms and filled with paper generally resulting from rounds of photocopying and printing. Pupils are encouraged to make use of this readily available source of paper during “wet playtime” (a timetabled break usually taking place outdoors but instead pupils are confined to the classroom due to inclement weather).

The infrastructure of the school building may be the site of less obvious but equally important efforts to develop a more sustainable approach to everyday life in school. According to the Carbon Trust, heating, lighting and ICT are the largest areas of energy use in a school (Harris, 2008, p. 7). Upgrading the school boiler or replacing the lighting to provide a more energy efficient alternative is likely to reduce energy usage, and in turn, energy bills. However, the anticipated financial outlay can present a problem, thereby necessitating careful budgeting to balance spending with savings. Facilities commonly found in primary schools, not just Eco-Schools, are recycling bins and boxes. These can be found in classrooms or close to photocopiers and printers or, depending on their size, outside in bin stores. Further indications of efforts to conserve energy may be in the form of notices reminding staff and pupils to switch off lights when leaving a room or to turn off taps when not in use. The reasoning behind the presence of these procedures and facilities may range from an effort to make financial savings to a desire to reduce energy and resource consumption. Nevertheless, they suggest that environmentally responsible practices are taking place in the school.

School timetables under pressure

Schools are understandably busy places and timetables are already straining under the weight of key subjects, topics and events. State funded primary schools in England are required to teach a national curriculum of eleven compulsory subjects to enable pupils to become educated citizens and to prepare, “*pupils at the school for the opportunities, responsibilities and experiences of later life*” (Department for Education, 2013a, *Section 2.1*).

Adding environmental education to the schedule can apply further pressure. Yet primary schools find ways to incorporate a wide range of subjects, skills, knowledge and understanding into a tightly constrained number of sessions (at least 380) per school year. (Department for Education, 2013b, *Section 2: School year*). One method is the use of a cross-curricular approach to develop understanding when teaching primary school topics such as “Plants and Gardens” or “Europe”. Often there will be an opportunity for contextual learning to develop literacy, e.g. explanations, non-chronological reports, as well as using and applying mathematical skills within the theme, e.g. measuring, shape. Additional elements such as learning about the role of worms and food waste may be taught as discrete lessons or as ongoing lessons. Additionally, to prepare children for interacting with and understanding the

world around them schools also seek to develop citizenship and relationship skills such as setting and following rules, working co-operatively.

The approaches to developing skills, knowledge and understanding may vary throughout the school day and include learning through observation, modelling, play, investigation or by direct teaching. These approaches are utilised by a range of adults encountered by the pupils during the course of the day. Often the class teacher is assisted by member of support staff such as a teaching assistant. As the children move around the school they encounter other teachers and support staff as well as the Headteacher, welfare staff, cleaning staff, office and kitchen staff. In a primary school, the children are regularly presented with opportunities to observe, listen to and question almost the entire staff within a relatively short amount of time. As a consequence, potential influences on practice and beliefs come from not only their peers, but also a range of teaching and non-teaching staff. However, during the course of an average day in a primary school, due to their dominant social power a major influence on classroom practices is likely be the class teacher (see Literature Review sections: *Modelling sustainable behaviour*, *Participation and power relations* and *Learning through observation*).

So, it can be ascertained that a combination of subjects, cross curricular topics and ongoing development of social skills leads to a full timetable. This continues as children progress through their primary school and each year are taught by a class teacher who differs from their former teacher, located in a different classroom and often in a different part of the school. Their class teacher will establish class rules and expectations from the first day in the new class. These will include procedures for entering and leaving the room, procedures in the event of a “wet play” and how to use, distribute and collect in resources. Additionally, the ethos of the school will be regularly reinforced throughout the day by teaching and non-teaching staff. Generally, an ethos of tolerance, kindness and perseverance tends to permeate primary schools. The message is often emphasised by written methods whereby schools highlight their stance by deploying the prominent placement of key words and phrases in classrooms and in areas where pupils and staff gather regularly, such as the school hall or corridors. Additionally, the school ethos may be influenced by a commitment to a faith. For example, a school which is part of the Roman Catholic community would ensure that the presence of artefacts and messages reflect Catholic values and that the teachings are incorporated into the curriculum to encourage a holistic approach.

In short, in my experience a busy school will use a variety of approaches to develop skills, knowledge and understanding, some of which may inadvertently or deliberately foster awareness of sustainability. Additionally, there may be numerous reasons behind the provision of facilities and infrastructure that limit the consumption of resources or energy, and staff and pupils may perceive

this in a myriad of ways. Furthermore, as staff and pupils undertake their everyday interactions, routines and procedures during the course of a school day they may encounter a range of beliefs, actions and understandings related to consumption practices, sustainability and awareness of environmental issues and responsibility. These are investigated during the research process.

The following section provides the investigation's aims and key questions, which have been designed to focus the research and to clarify purpose.

Aims and key questions

There are two main aims:

1. To investigate the environmental perceptions, beliefs and actions of staff and pupils in an Eco-School
2. To examine the influence of the Eco-Schools ethos on the beliefs and actions of staff and pupils

Furthermore, I address the following key questions:

1. What constitutes "environmental responsibility" from the perspectives of pupils and staff?
2. How are environmentally responsible beliefs and actions manifested in the school space?
3. What are the main outcomes of approaches used to develop sustainability in school?
4. To what extent does the Eco-Schools ethos influence the actions and beliefs of staff and pupils?
5. How do the beliefs and actions of pupils compare with those of staff?

To address these questions, it was necessary to gain insight into pupil and staff perceptions of waste, recycling, reuse, consumption of energy and what they understood by environmentally responsible actions. It was also necessary to gauge their beliefs regarding environmental actions and to explore the relationship between these beliefs and their own and others' actions. Finally, within the context of pupils and staff engaging in the practices of encouraging environmental awareness, responsibility and behaviours in a Roman Catholic Eco-School, the links between the elements of these practices, agency and participation were also ascertained.

By presenting an ethnographic study of the relationship between the environmental beliefs and actions of staff and pupils, the thesis contributes towards a greater understanding of the perceptions, relationships, behaviours and attitudes present in an Eco-School.

Significance of the research

While there is much research exploring values or behaviour, there are few qualitative studies examining actions relevant to environmental responsibility and the perceptions of staff and pupils. The study will give an in-depth account of everyday, routine actions relating to environmental responsibility taking place in an Eco-School. By examining these actions in light of the criteria for an Eco-School, it will also provide insight into the enactment (or not) of environmentally responsible behaviour and the relationships between teachers' and pupils' practices, roles, thoughts and actions. By using the lens of social practice theory, the study will extend understanding of the perceptions of pupils and will provide insight into the range of environmental practices taking place in an Eco-School. Moreover, it will appraise the influence of the Catholic character of the school, in addition to differentiated perceptions and routines, on practice.

Thesis structure

Including the introductory chapter, the thesis comprises six chapters.

The second chapter contains a concise review of literature to provide context to the study and to indicate the importance of the subject area.

A description of methodology and methods is contained within the third chapter. It outlines the theoretical perspective and defines how the application of social practice theory informs the approach to the research.

The fourth chapter presents the findings from data analysis which are then discussed in relation to relevant literature in chapter five.

The final chapter draws clear conclusions, reviews the implications and limitations of the study and offers recommendations for practice and ideas for future research.

Chapter 2

Literature review

Introduction

It was recognised at the UN Rio Earth Summit of 1992, that the negative impact of climate change was a global concern which required international collaborative action to sustain human life. The meeting included political leaders, scientists and representatives from non-governmental organisations who met to discuss how social, economic and environmental concerns could be balanced and integrated to produce an international agenda for action (United Nations, 1992). There was agreement that perceptions regarding production and consumption needed to change. Major outcomes from the Summit included the advancement of sustainable development goals and a call for new methods of education.

In response to the Summit, the Eco-Schools programme was introduced with the intention of raising awareness of environmental issues, developing environmentally responsible behaviour and empowering pupils to participate in the school's decision-making process regarding sustainable actions (Foundation for Environmental Education, 2020). When a school becomes established as an Eco-School various approaches may be used to develop knowledge, skills and learning for sustainability, and staff are expected to support actions and demonstrate a willingness to guide pupils as they develop their leadership skills and collaborative work.

However, studies have indicated that the programme may not be producing the expected outcomes (Boeve-de Pauw, 2013), including equipping pupils with the knowledge, expertise and attitudes needed to tackle environmental issues (Cincera and Krajhanzl, 2013). Additionally, although there have been a variety of frameworks and initiatives used in schools to develop the skills of sustainable living (Rickinson, Hall and Reid, 2016), policy makers have favoured the use of behaviour change models which rely on the premise that individuals will choose to change their behaviour (such as reducing their consumption of energy and resources) as a result of increased environmental knowledge (and persuasion) influencing their attitudes towards sustainable behaviour. However, it has been argued that this fails to take into account the range of hindrances, beliefs and influences that impact on the everyday social practices of individuals (Shove, 2010). Instead, a holistic view would consider the range of beliefs, levels of commitment, influences, skills, resources and reasoning which staff and pupils must manage during the school day. Together with the concepts of school power relations, participation and pupil agency, it seems apparent that there are numerous factors which

may go some way to shaping the perceptions, beliefs and behaviours of pupils and staff as they engage in the practices of developing environmental awareness and responsibility.

An investigation of the background to the study enables the recognition of the importance of the subject and the identification of areas requiring further exploration. Based on the aims of the thesis, this literature review sets out to provide an overview of findings from environmental education research. It will provide a context for the exploration of the Eco-Schools programme and the beliefs and behaviours of pupils and staff in a Roman Catholic Eco-School. Additionally, it will consider pupil and staff roles and responsibilities, their perceptions of environmental responsibility and the effectiveness of approaches designed to develop environmentally responsible practices. Furthermore, there will be an introduction to some of the barriers and drivers which serve to help or hinder the deployment of these approaches.

Understandably, the review is not able to cover all relevant research although it does aim to provide a thorough introduction to key areas. More detailed discussion will take place in further chapters.

Context

As environmental education, and particularly the Eco-Schools programme, forms the context for the study, the following sections focus on what is meant by environmental education, in addition to an introduction to the aims and impact of the Eco-Schools programme.

Sustainability and environmental education

It is well-documented that the way we live is putting a strain on limited natural resources and the natural world (United Nations, 2019a). This pressure is unsustainable, and it is the long-term, challenging goal of many governments and voluntary groups to tackle climate change and protect people and the planet, whilst maintaining economic growth. Largely in response to the conflict between economics and environmental protection, the 1987 Brundtland Report (Brundtland, 1987) offers the basis for sustainable development (SD). The United Nations publication provides a comprehensive introduction to SD and discusses how this might be achieved. It defines SD as seeking *“to meet the needs and aspirations of the present without compromising the ability to meet those of the future”* (paragraph 1, no page). However, there are untold difficulties associated with confronting the impact of climate change whilst driving SD, as the two are interlinked. This is demonstrated in the 2014 report from the IPCC. It outlines the current and future impact of climate change on people and ecological systems (Field et al., 2014) and defines ways in which people and societies have adapted and will need to adapt, whilst making regular reference to SD. Later, the relationship between climate

change and SD is clearly manifested in the adoption of the 2030 Agenda for Sustainable Development by the General Assembly of the United Nations (2015). This comprises 17 Sustainable Development Goals (SDG) designed to tackle poverty, inequality and climate change including Goal 13 which focuses on Climate Action. Specifically, Target 13.3 aims to improve education and to raise awareness of ways to reduce the impact of climate change. This, together with the 21st Conference of the Parties signed in Paris by almost every country in the World to commit to protecting the environment (COP-21), seems to suggest a global effort dedicated to reducing the impact of climate change. Indeed, in an effort to develop climate diplomacy COP-21 enables countries to pledge their own emissions targets or “*domestically-driven climate action*” (Falkner, 2016, p. 1119), but to remain accountable through review and reporting. Falkner believes this and other elements of diplomacy provides countries with the opportunity to develop “*innovative initiatives (that) can be encouraged and nurtured*” (p. 1125) and perhaps inspire similar actions from other countries. However, the author is justly cautious about the Agreement given the record of previous international treaties.

Yet notwithstanding these global efforts, the remaining challenge is how to translate such complex issues into practical, relevant and understandable measures that are applicable to young people. This challenge was accepted by the United Nations and their Decade of Education for Sustainable Development (ESD) which lasted from 2005 to 2014. One of the Decade’s key objectives was to encourage governments to improve the quality of environmental education in order to foster the values and behaviour needed to live a more sustainable lifestyle. The UK’s bid to tackle ESD was via the Eco-Schools programme and the Sustainable Schools Initiative for instance. Schools are ideally suited to providing pupils with the knowledge and understanding to live sustainably both by modelling sustainable practice and by using the curriculum to discuss issues arising from SD. This view is supported by Harris who states:

“sustainability is inherently and primarily a moral issue. This is why schools have a fundamental role to play... [and it is] ...concerned with sound environmental management that requires a change in thinking and practice...Schools have a key role to play in modelling that alternative future” (2008, pp. 6-7).

Additionally, it has been stated that SD is a process of learning and so will only happen if learning is taking place in schools (Martin, 2013). Indeed, education is viewed as central to the development of an understanding of sustainability and how to make sustainable decisions, but the authors emphasise the need for a coherent strategy that ESD the centre of UK education policy. Having said this, there remains the issue of how best to implement and embed sustainability in mainstream schools. An article from 2013, just prior to the end of the Decade, contends that the result of awareness initiatives

has been “*patchy*” (Martin, 2013, p. 1537) and it would be preferable to share good practice and develop better planned and coherent provision in schools.

Eco-Schools programme and its impact

The Eco-Schools programme is a popular EE initiative boasting a high (>70%) participation rate in English schools (Keep Britain Tidy, 2013). The initiative operates a pupil-led programme of environmental education leading to awards gained largely via a self-assessment process. Curriculum-based learning aims to assist pupils’ knowledge and understanding of environmental issues and according to the global Eco-School website:

“[Pupils] will carry the behavioural patterns they uptake under the auspices of Eco-Schools with them through life, in turn teaching the next generation the habits to make a difference” (Eco-Schools, no date, d).

Registered schools are encouraged to engage in a range of activities relating to given criteria, such as the establishment of a pupil-led Eco-Committee and regular audits of energy consumption. Environmental topics, such as water, waste and transport, are linked to the curriculum and taught or “covered” in lessons. Eco-Committee pupil members are expected to communicate their actions in a variety of ways, e.g. notices displayed on the Eco-Board. According to the Eco-School website, the programme “*empowers pupils to lead change within their school*” and “*pupils on the Eco-Committee take responsibility for leading the actions*” (ibid. no page) stemming from the meetings. This also includes providing opportunities for these pupils to monitor and evaluate Action Plan targets. Certainly, it seems clear that the Eco-School programme seeks to provide pupils with a range of roles and responsibilities, in addition to imbuing knowledge and awareness of environmental issues. Indeed, the Office for Standards in Education, Children’s Services and Skills (Ofsted) stated that the involvement of pupils is a key feature of the programme “*including monitoring, action planning and decision making*” (Office for Standards in Education, Children’s Services and Skills, 2008), therefore potentially offering pupils a wider range of opportunities for learning. In fact, a recent report, part of the UK National Commission for the United Nations Educational, Scientific and Cultural Organization (UKNC-UNESCO) highlighted an example of ESD in practice in an Eco-School (2017). The case study lauded the importance of the Eco-Committee and its contribution towards the development of confident citizens, capable of good communication and thinking skills, who are learning to live sustainably (p. 9). The case study describes how pupils have been influenced by ESD in their school, which is encouraging considering UKNC-UNESCO described ESD as a means to “*address present and*

future global challenges and create more sustainable and resilient societies by changing the way we think and act” (ibid. p. 3).

The Eco-Schools programme relies on a whole-school approach whereby all staff and pupils are aware of the school’s efforts to develop environmentally responsible behaviour. The effectiveness of a whole-school approach to sustainability is considered in research from Goldman et al., (2018). In particular, the study investigated the effectiveness of the Israeli Green School Certification (GSC) programmes development of environmental literacy (EL) of pupils and the inclusion of sustainable practice within the school organisation (ibid. p. 1301). This programme mirrored the Eco-Schools programme, and the authors were aware of the findings of Boeve-de Pauw and Petegem (2011) who noted the resulting increase in knowledge and understanding, but not pro-environmental attitudes or behaviour. What makes this Israeli-focused study particularly noteworthy is its interest in the stage of certification and observations of sustainable practice in schools using a form devised by the Israeli Ministry of Environmental Protection (MoEP). This straightforward assessment enables monitoring of infrastructure, practice and facilities and importantly, helps to monitor ways in which a school incorporates elements of sustainability into everyday school life *thereby “maintaining long-term commitment to sustainability”* p. 1310. This long-term commitment is viewed by Goldman et al. (2018) as a challenge to maintain due to a number of reasons, for instance staff capability. Additionally, noticeable differences in progress or action are evident depending on the stage of certification, e.g. newly acquired, in the process of further development or accredited some time earlier. This is an interesting point and may be pertinent to Eco-Schools in the UK which may have peaks and troughs of activity and enthusiasm. Furthermore, considering the Eco-Schools ethos expects pupils to be provided with the opportunity to steer changes in their school community, the authors go on to make another significant point. That is, the study emphasised the importance of active pupil participation in decision-making to develop a *“sense of ownership”* (p. 1309) and potentially reduce the likelihood of a disparity between values and behaviour as noted in work by Kollmuss and Agyeman for instance (2002).

Importantly, the impact of the programme on behaviour and attitudes has been studied by several researchers including Krnel and Naglic (2009), Boeve-de Pauw and Van Petegem (2011, 2013a, 2013b), Huckle (2013), Cincera and Krajhanzl (2013), who provide analyses of the initiative’s effectiveness. Since preparation for living an environmentally responsible lifestyle forms a key objective of being an Eco-School those establishments which have been awarded Eco-Schools status are expected to approach daily life in a sustainable manner, e.g. carefully considering water and energy usage, litter, transport, food waste, biodiversity and the school grounds. But research by

Boeve-de Pauw and Van Petegem has demonstrated that the Eco-School approach to learning about sustainability may not be producing the expected outcomes. In fact, they state *“our results show that Eco-Schools have no effect on the environmental behaviour of children, but they do affect their utilisation values”* (2013a, p. 101). That is, to what extent they feel that natural resources should be used by humans. The authors suggest that differing teaching methods may contribute to these outcomes. They explain that an anthropocentric approach, favouring an understanding of the human use of natural resources such as water and energy, seems to be prevalent. Crucially, they note that this predominantly human-centred approach has little impact on environmental behaviour. Finally, they recommend increased focus on an understanding of humans as part of the natural world (biocentric approach), to encourage environmentally responsible behaviour. Krnel and Naglic also noted few changes in behaviour or the development of the skills needed to tackle environmental issues (2009). The authors were conscious of poor results from Slovenian Eco-Schools and aimed to collect objective data to ascertain the effectiveness of eco-schools in developing environmental literacy in pupils. The authors described environmental literacy as consisting of three levels: awareness, knowledge (a combination of awareness and action) and finally, a depth of skills and information which forms environmental literacy. To question the effectiveness of Slovenian Eco-Schools in developing environmental literacy in pupils, the study compared responses from pupils to questionnaires from Eco-Schools and ordinary schools. Analysis of responses revealed little difference in pupils’ knowledge of answers and regarding both awareness and behaviour, the differences were not significant. It was concluded that Slovenian Eco-Schools increased knowledge but did not develop environmental behaviour, a key element of effective environmental education. In fact, the authors were scathing regarding the Eco-Schools programme. Moreover, in a study by Huckle (2013), it was concluded that the use of sponsorship to support sustainable schools’ programmes such as Eco-Schools, limits pupils’ eco literacy. That is, the author argues that private sponsorship of educational materials limits the opportunity for debate but recognises that tight budgeting constraints in schools can make corporate schemes to buy computers and books seem attractive. Although some teachers are cautious of the increasing influence of corporate links with schools. corporations counter this by sponsoring charities, therefore enhancing their reputation for social responsibility.

Work by other authors also challenge the procedures involved in applying the Eco-Schools programme. That is, despite the noble intentions what can be deemed problematic is the programme’s rather prescribed approach. Evaluations of the programme demonstrate a positive influence on raising staff and pupil awareness of environmental issues and encourage recycling and reduction of waste for example, yet questions have been raised regarding the value of producing a “tick list” approach to attaining goals rather than enabling pupils to continue to develop the skills

needed to transfer their environmental learning and practice to their homes (Cincera and Krajhanzl, 2013). The idea that Eco-School procedures and routines, such as recycling, can be readily transmitted to the home environment, is debated by Satchwell when considering carbon literacy and children as agents of change (Satchwell, 2012). The study draws attention to the importance of recognising that factors such as infrastructure and purpose are central to determining whether or not a child is able to transfer their practice (and see *Theoretical Perspective: Social Practice Theory*). Of particular interest is the recognition that an activity that is both social and regular, for example a regular family visit to the local council tip to recycle household items, is more likely to be maintained rather than a school-based activity that simply requires good intentions, e.g. ways to save energy.

Pupils may go on to affect the behaviour of family members by transferring their understanding of sustainable living to their home-life. The impact on family life of this “positive pester power” has been studied by O’Neill and Buckley who recognise the value of children passing on their environmental education knowledge to their family, in order to promote a sustainable lifestyle (2018). By actively participating in sustainable behaviour in school, e.g. composting school dinner leftovers, children felt able to question occasions when they felt their family was not behaving in an environmentally responsible manner. However, it seems that although the children may encourage behavioural changes, the attitudes of family members did not change. Financial or legislative reasoning was cited for behaviour change, rather than environmental sensitivity. This is in line with research from Kollmuss and Agyeman (2002) and Shove (2010) amongst others, who have investigated the complex relationship between values and action (see *Barriers* and *Theoretical Perspective: Social Practice Theory* for further discussion).

To summarise, whole-school environmental education initiatives such as the Eco-Schools programme seek to actively involve and inform pupils. Teaching topics related to a range of environmental issues aims to increase pupil awareness of sustainability, whilst activities suggested and led by the pupils, encourage them to become involved in making changes to their environmental behaviour. To what extent pupils are actively involved in leading actions or making decisions about areas which matter to them will be explored in the study.

The following section aims to examine the perceptions of staff and pupils in an Eco-School. This will include the consideration of how staff and pupils perceive environmental responsibility, the importance of teacher training and what pupils feel about sustainability issues.

Perceptions of environmental responsibility

Muller (2007) describes awareness as the capability of a human to perceive. The author highlights the importance of recognising the purpose of something or its use, in order to understand the value of it. Indeed, Muller notes that we don't always notice "the usual" but this recognition helps us to notice the unusual which we can then compare this with what we already know. To what extent we choose to or are able to minimise our impact on the environment, may depend on a range of factors, including our attitudes, availability of infrastructure or simply the pressure of time. In a school, what staff understand about their role in conserving energy or avoiding wastage of resources may differ from one person to the next. They may share similar or different views, depending on what they perceive to be their "duty" or their role in developing a more sustainable lifestyle. Similarly, pupils are likely to display a range of perceptions, based on influences within and outside the school environment

Staff perceptions

Staff attitudes and how they perceive environmental responsibility may impact on their approach to developing environmental awareness in pupils or their ability to encourage pupils to be environmentally aware. In their case study of a Slovenian primary school and the addressing of attitudinal gaps, Lukman et al. (2013) argued that the influence of the environmental attitudes of teachers, particularly in primary schools, can shape the attitudes and behaviour of the pupils. Other factors also played key roles in influencing behaviour for example family and school infrastructure (e.g. provision of recycling bins) and these are noted by the authors. However, the study emphasised the importance of school staff acting as role models and schools working hard to evaluate and improve the means to behave in a pro- environmental manner, rather than relying upon the taught curriculum to provide "*informational attitudes*" (p. 99) and little else.

Realising the scarcity of data relating to teachers' environmental values, research by Oerke and Bogner (2010) sought to analyse the environmental attitudes of student and qualified teachers. This is of interest given the expectation that schools should play a key role in the development of pupils' awareness of sustainability. It concluded that although young female schoolteachers generally possess pro-environmental attitudes, by choosing to focus on a largely biocentric view and perhaps seeming to neglect the view of nature as something that can be sustainably used by humans, they may unwittingly fail to provide a "rounded" interpretation of the environment. Instead, it is proposed that they aim to provide a view that is "*realistic and not disjoint from their own lifestyle as is still exemplified through the average adults' own lives*" (p. 121).

Furthermore, although only a small number of trainee teachers were involved in a study by Ryan (2004), the research provided an insight into the attitudes of this potentially influential group. It appeared that the teachers viewed the provision of values and attitudes as one of their key responsibilities, but not necessarily environmental values. Somewhat contrary to the findings of Oerke and Bogner, the author concluded that the student teachers often lacked pro-environmental attitudes and a clear understanding of (and in some cases a willingness to understand) environmental issues despite their dominant, influential role as educators. This is of interest due to the potential missed opportunity of newly trained teachers who could make a positive difference to the lives of young people.

The importance of ensuring teachers feel qualified to teach pupils to be environmentally aware, when they are already faced with the demands of a full timetable, is examined in Rickinson's extensive review of learning outcomes (2001). Emphasis is placed on highlighting the importance of ensuring staff are keen and well-versed if they are to teach or co-ordinate environmental education (p. 261). In other words, it is insufficient to designate a role to a member of staff and hope this will be enough to motivate pupils to demonstrate environmentally responsible behaviour. Instead, an understanding of and interest in the subject area are important prerequisites. This is demonstrated in a study centring on teacher practice and the use of the local environment, including school grounds, to creatively engage pupils with sustainability education. Green and Somerville (2015) are aware of the difficulties facing teachers as they try to incorporate sustainability education into an already full curriculum. Yet they are able to demonstrate that teachers can effectively combine the development of skills (inquiry, prediction) with the use of a place which is meaningful to pupils, e.g. school grounds.

It almost goes without saying that teachers, acting as a key influence in a child's life, need to be familiar with sustainability if they are to provide pupils with a comprehensive and holistic introduction to living a more sustainable lifestyle. Actions such as reuse and recycling of resources in the classroom, are practices noted during a study of the views and experiences of young children, their teachers and parents (Yildiz et al., 2017). Pertaining specifically to SD and its component parts (including living within environmental limits), the authors showed that young children were able to moderate their electricity and water consumption. Bearing this in mind, it was concluded that increased levels of teacher training regarding SD, would subsequently expose pupils to a much wider range of opportunities to develop SD skills and understanding. Also with regard to training needs, Summers et al. (1998) focused their study on primary school teachers' perceptions of energy efficiency and distinguished between the scientific concept of conserving energy (energy transfer) and that of energy conservation relating to the human action of "saving" energy. The authors highlight the importance

of including the topic of energy in primary education and a need for primary teachers to scientifically understand what is meant by energy and issues surrounding its use and conservation. This, they believe, would lead to more effective teaching of the area. Additionally and significantly, the authors state that there is very little research regarding staff and pupil understanding of energy efficiency and using less energy.

A study regarding the perception of EE and ESD from primary school teachers, was undertaken by Chatzifotiou (2006). The author noted that teachers considered education about the environment, to be a topic they had taught for many years. Yet, the author determined that teachers had been approaching EE very generally and did not understand the background of EE. In fact, they had been given little training to equip them for teaching EE in the first place and so any development, such as a move towards ESD, was often a challenge. Many teachers perceived EE as increasing pupils' awareness of the environment in general, e.g. effects of litter, animals and plants found in their local environment or describing pollution. Due to the generalized approach of EE, the author noted the difficulty of building on EE to introduce ESD. In other words, it was determined that there was an over-emphasis on education about the environment and insufficient understanding of education for the environment. However, it is also important to recognise pupils as individuals who are capable of active citizenship. However, according to Aarnio-Linnanvuori (2019), Finnish teachers who participated in the study, viewed young peoples' capabilities to act environmentally as limited, whilst their options for active participation were considered to be quite narrow and *"more limited than those of adults"* (ibid. p. 58). Options believed to be applicable for pupils included recycling and switching off items, i.e. easy to achieve. The author suggested eco-clubs for collective and local action and recommended viewing pupils as active citizens.

Pupil perceptions

Considering environmental education programmes seek to provide children with the skills and understanding to comprehend environmental issues, and to live a more sustainable lifestyle, it might be presupposed that children's perspectives of sustainability would be considered worthy of investigation. However, an examination of pupil perceptions of environmental issues by Green (2016) suggests a paucity of research in this area. Nevertheless, Green's work is illuminating as it suggests that the participants, albeit a small number (n=16) possessed *"well-developed ideas and beliefs about how humans inhabit and might inhabit the world [and they] call for decisions and actions that sustain rather than hinder the earth's integrity"* (Green, 2016, p. 163). She highlights an example of a child producing a lesson plan for younger pupils and the older pupil resolutely believes in the need to visit the local wetlands so that the younger children have a first-hand experience of seeing the various

wildlife interactions. Valuing wildlife and insisting that humans should take care of the world and adapt to lessen their negative impacts upon it, are viewed as common themes in a child's perception of sustainability according to Green.

Insight into children's perceptions of sustainability comes from Hadfield-Hill's discussions with pupils regarding a school-based sustainability initiative (2013). When their school participated in a stand-alone "Green Day" whereby lights, computers and interactive whiteboards were not used for the duration of the day, some pupils remarked that in an effort to reduce energy consumption, and despite their electronic registration procedure being shelved for the day, a paper register was printed, therefore using electricity and paper. This level of logic demonstrates that pupils have a voice and are capable of considering issues surrounding environmental responsibility (see *Participation and power relations*), in addition to being capable of explaining their thinking. It also demonstrates that some pupils perceive sustainable actions as more than simply swapping one form of energy use for another and for only one day. One pupil neatly summed this up this somewhat contradictory effort to minimise energy usage, when they suggested "*you are supposed to do it all the time*" (p. 362).

Pupils were also aware of energy usage and wastage. A study by Kruger and Summers (2000) examined Year 5 and Year 6 pupils (from the upper primary age group) understanding of energy waste prior to and following teaching of the topic. This included an interesting examination of children's preconceptions regarding heating energy and saving or wasting it. They categorised "frivolous" use, e.g. used for a computer game rather than for lighting or heating and "saving energy by using less" e.g. closing the door to maintain temperature in a room. The authors concluded that pupils had good awareness of behaviours that save or conserve energy and believed they formed "everyday" ideas which were "human centred" rather than using scientific thinking to explain energy usage. In conclusion, the study determined that non specialist teachers, when given some scientific training, were effectively able to impart science-based thinking about energy efficiency, including knowledge about energy waste and conservation.

Ethos and the development of environmental responsibility in school

It has been suggested that sustainability is a moral issue and so schools have a key role to play in equipping pupils with the awareness and understanding to deal with environmental issues (Harris, 2008). The ethos of a school may have a role to play in supporting the development of these and other qualities, such as tolerance and empathy. Further, a school ethos may be based on religious values or a whole-school approach to the development of environmental awareness. It would be expected that

the school ethos would underpin each element of everyday school life and shape its guiding principles. The following sub-sections explore the role of the school ethos, including the role of religion.

School ethos

When schools state their values and expectations, they are to a certain extent, describing the character of the school. Some schools choose to develop awareness of sustainability through a holistic, whole-school approach, involving a policy which reflects their environmentally responsible values. The ethos of an Eco-School for example, may permeate throughout the entire school community and involve direction ranging from day-to-day behaviour to the provision of facilities and infrastructure.

By ensuring that sustainability is part of whole-school policy, this approach seeks to engage all staff and pupils, as opposed to relying upon isolated groups or individuals to implement change. The reasons why policies may be viewed as a potentially effective means of delivering change is explored in a survey of school policies in Nottinghamshire by Denman et al. (1999). According to the study, policies can have positive and negative connotations, in that a policy may indicate a sense a shared commitment and recognition of professionalism, but during the preparation stage care must be taken to consult with those staff who are expected to be involved in the execution of the policy duties. This should be taken into consideration when examining Lewis' study (2012) involving the implementation of a whole-school policy, the Australian Sustainable Schools Initiative (AuSSI). The study showed the need for a holistic approach to help form connections between processes and for sustainability to be viewed as *"a core educational responsibility, embedded into the curriculum, within a whole school approach"* (ibid. p. 244).

It is unsurprising that schools can provide significant opportunities to influence the practices and attitudes of children and young people, given the regularity and duration of time spent in school. Whether it is the school ethos or the actions or attitudes of individual members of staff, pupils are exposed to these values and behaviours for lengthy periods of time each day. In fact, research by Winter (2008) established that a holistic approach to sustainability, whereby pro-environmental practices are experienced as part of daily life in school, can effectively encourage participation in sustainable actions. The research focused on teenagers' engagement with programmes of ESD. Commenting on the influence of schools, the author argued that they have *"the potential to exemplify pro-environmental behaviour and practice within everyday routines and estates management rather than focusing on a rather stale elucidation of environmental pressures and issues"* (ibid. p. 319).

It is unclear which day-to-day pro-environmental actions staff and pupils could engage in to promote a sustainable lifestyle. However, perhaps by including the following quote from former Prime Minister Tony Blair, Winter aims to emphasise the notion of sustainability being embedded in school life, rather than viewed as almost a separate, stand-alone element, taught during lessons:

“Sustainable development will not just be a subject in the classroom: it will be in its bricks and mortar and the way a school uses and even generates its own power. Our students won't just be told about sustainable development, they will see and work within it: a living learning place in which to explore what a sustainable lifestyle means” (Department for Environment, Food and Rural Affairs, 2005).

It is important to note however, that possession of a school environmental education policy does not necessarily equate to pupils (and staff) changing their behaviour. Rather, motivated and informed staff are also required to translate programmes/policy into reality; a point made by a study by Rickinson (2001). That is, agents are needed to perform the routines and procedures associated with sustainable practices. Additionally, even if a programme is deemed to be successful and provides positive outcomes, e.g. raised pupil knowledge and understanding of sustainability, these successes may be short lived. For instance, Lewis (2012) noted that when Education for Sustainability (EfS) was no longer viewed as a whole-school priority funding was ceased and EfS projects halted. Furthermore, Lewis emphasised the need to ensure the school sustainability policy is put into practice rather than simply acting as a source of documentary evidence to show good intentions in theory.

Religion

The ethos of a Roman Catholic school is largely directed by its religious doctrines; therefore, this ethos may have been guided by the papal encyclical “Laudato Si” which serves to highlight the environmental cost of climate change. According to Schneck (2016), it also strongly emphasises the ensuing responsibility of individuals and agencies to “renew our relationship with the earth” by recalling the divine purpose. The author explains that the encyclical is a survey of the ecological crisis which is threatening people and the environment. Furthermore, Schneck notes papal references to a globally distorted anthropocentrism, and the requirement for institutions, individuals, business and governments to work together to regulate destructive human activity. As the author points out, the Pope may have advocated dialogue between nations and policy makers to debate environmental responsibilities and economic policies, but as the papal aim was also to “renew humanity’s covenant to care for creation” (ibid. p. 84) it was clear that the overall aim was faith-based. Nevertheless, it

remains evident that the central point of the message was to think and act sustainably, and with every individual and organisation urged to take responsibility for their actions.

The role of religion was also examined in a study of Indonesian schools. Specifically, to ascertain how effectively the curriculum could support the development of skills needed by pupils to tackle environmental issues, Parker (2017) examined the religious state of Indonesia and its introduction of a new national curriculum following its participation in the UN Decade of Education for Sustainable Development (2005-2014). The author found there was no sense of responsibility for the negative impact of human action on the environment and despite severe environmental destruction and low levels of awareness of environmental issues from the population, the curriculum was perceived as a missed opportunity for enabling students to become "*environmentally aware citizens*" (p. 1255). In fact, the environment was viewed as a resource to be exploited by humans (anthrocentric view) and when there are references to the negative impact of human behaviour in the environment, the issues are handled objectively and with no responsibility. It was concluded that the curriculum did not provide information about the economic system and how it drives destruction or enables an understanding of the relationship between humans and their environment. This was in spite of reference to "*environmentalist Islamic scholars*" (ibid. p. 1266) who described the role of humans as stewards with a responsibility to look after the environment.

The desire to protect the environment has also been explored by Hitzhusen (2006). The author believes that religious perspectives can enhance environmental education if they are used with thought and care but appreciates that it can be difficult to reconcile some religious environmental views with traditional environmental education. However, Hitzhusen believes there are sufficient common features, such as a need to care and protect, to facilitate a joint approach or partnership. It is clear that the study intended to demonstrate that by taking a neutral stance and avoiding controversial elements it may be possible to merge religious thinking with environmental education and to a certain extent this has been successful.

Expectations, roles and responsibilities of staff

School staff have a crucial part to play in supporting environmental education, ranging from teaching topics related to environmental issues, to modelling sustainable behaviours. Staff potentially have the capability to facilitate the development of understanding and awareness, through modelling and providing opportunities for direct experiences, but it may be argued that the beliefs, actions and understanding of staff make this a challenging prospect.

School leadership

It is the opinion of Harris (2008) that effective school leadership is key if a school is to be a sustainable school. This requires leadership to embed sustainability in policies for teaching and learning and to plan for long term changes without neglecting the overriding importance of quality teaching and effective learning. In the drive to become a sustainable school, leadership must tackle the challenge of reducing energy use. By far the largest area of a school's energy consumption is heating, followed by lighting, with ICT viewed as an additional area for large energy savings. By reducing energy use, schools would also be modelling environmentally responsible practice.

Kadji-Beltran, Zachariou and Stevenson (2013) aim to identify what types of school leadership are most likely to effectively support such practice in a primary school. The authors believe there is a gap between schools claiming to support sustainability and their actions. They suggest that possible reasons include the school leadership's lack of knowledge and understanding of education for sustainable development and whether they feel the school can implement it due to a narrow and centralised curriculum focus on literacy and numeracy. The authors concluded that there was a need for "external expertise" to collaborate with staff and share their knowledge. In addition, they determined that encouraging an awareness of the local environment would help pupils gain an understanding of local sustainability issues and develop problem solving skills.

Encouraging a holistic approach with direct experiences

Other researchers have favoured an "holistic" method of encouraging pro-environmental behaviour. This was the conclusion of Lucas et al. (2008) which recommended "*treating audiences not as passive targets but as active partners in the process of change*" (p. 465), a view echoed by the Eco-Schools programme, which actively encourages whole-school and local community involvement (Eco-Schools, no date, c).

The challenge of implementing sustainability education is addressed in a study based in primary schools in Australia. The authors, Green and Somerville (2015) studied teacher practice relating to sustainability initiatives in school, use of the school grounds and making links with the wider community. Of note is that the participants were teachers with a shared interest in the environment and sustainability. They recognised the value of using a variety of means to "*expand their own, as well as their students' understandings of sustainability*" (p. 839) and used innovative methods to achieve this. For example, pupils sold produce from the school at the local farmers' market and groups of disengaged boys made nest-boxes with a local wood craft group. The boxes were later installed in a

wetland during a biodiversity day. The study is of particular interest because it demonstrates how teacher practice can define what constitutes sustainability learning. This can mean collaborative and creative learning in the school grounds or in the community. Such practice therefore widens the range of approaches for developing an awareness of sustainability, often involving inquiry and problem-solving.

Direct experiences, e.g. those involving time spent outdoors, are identified by Chawla (1998) as a strong factor in the development of an awareness of environmental responsibility. The author termed this awareness "*environmental sensitivity*" (ibid. p. 11) and included role models such as teachers, as important influences. Unfortunately, she does not go on to explain why this might be the case. However, the work does offer a review of studies considering the sources of important life experiences and highlights the limitations of previous studies. The author draws the perhaps understandable conclusion, that a single experience is highly unlikely to lead to a person becoming an environmentally responsible citizen; rather a combination of several is required.

Sharing Chawla's view of the importance of providing first-hand experiences outdoors and how these may help educators gain insight into the development of environmental awareness and attitudes, is a study involving Belizean students (Emmons, 1997). Emmons qualitative study involved gathering data from students participating in a programme based in a wildlife sanctuary. It was reasoned that a combination of direct experience, role modelling from the teacher and listening to the opinions of peers, helped students to gain a better understanding of their environment and recognise its "*intrinsic value*" (p. 343).

Modelling sustainable behaviour

A study of four secondary schools examined how they model sustainability through a range of approaches, e.g. school culture, role modelling, provision of facilities and school leadership (Higgs and McMillan, 2006). The authors highlighted positive examples of intentional and unintentional modelling of sustainable behaviours (peer to peer, pupil to staff, staff to staff) and recognised that consistency of actions is a key factor when considering successful outcomes to modelling. This ultimately relied on the culture of the school which underpinned the beliefs and behaviours of the school community and was aided by the provision of facilities and a willingness to use a range of approaches to develop sustainability. So that pupils and staff realised they had the ability to influence decisions, it was vital that they were actively involved in the school decision-making process.

Further research pertaining to the role of modelling of sustainable behaviour by teachers, has concluded that direct observation “*equips pupils with the knowledge needed to carry out the behaviors themselves*” (Higgs and McMillan, 2006, p. 50) and can effectively provide role-models that the pupils can emulate. Importantly, it is suggested that schools must self-assess to determine what they are already modelling in terms of sustainability, involve pupils in the decision-making process and encourage positive staff-pupil relationships, as well as a consistent approach to modelling sustainable actions. Perhaps unsurprisingly, these elements are more likely to foster effective sustainability modelling and crucially, lead pupils to copy the actions of their role-models. In addition, it has been noted that by rewarding the imitation of a behaviour it is more likely to be imitated again by the learner. Indeed, Frayer and Klausmeier go on to add that the social power of the person modelling the behaviour can influence whether or not the learner (observer) is likely to imitate their behaviour (1972). An example of this could perhaps be a member of staff rewarding pupils for performing certain previously modelled actions.

However, it seems to have been taken for granted that teachers can act as role models to pupils. But the perception of teachers as role models is explored by Sanderse (2013) and finds that adolescents do not view them in this way. There are several associated issues under discussion, e.g. the characteristics of a role model, how can moral issues be imbued, why do adolescents rarely cite their teachers as role models, can role modelling be classed as a teaching approach and the use of emulation and imitation. The study questioned the effect of modelling on pupils and described two types of modelling, including Bandura’s interpretation whereby pupils are given an explanation of why the teacher has acted in a certain way (1971). This ensured that modelling was not simply mimicry or conditioning and was effective when observation alone was insufficient for learning to take place. Importantly, the provision of an explanation meant that learners were more likely to recognise the virtues behind the actions. Overall, the study aimed to highlight the importance of teachers as “morally good” and effective role models who pupils feel they can and may wish to emulate.

Equally, it seems to have been assumed that more male primary school teachers need to be recruited to act as role models to boys. But Hutchings et al. (2008) aimed to challenge the view held by media and policy makers that there is a need for greater male recruitment. They interviewed Year 3 (aged 7-8) pupils in an effort to determine how male and female teachers were perceived by their pupils. It was concluded that male and female pupils broadly liked similar characteristics and wanted to emulate them. But gendered patterns were evident when pupils attributed characteristics to their teachers. This raised questions of the extent to which their perceptions reflected what they had experienced and to what extent teachers were behaving in stereotypical ways which reinforced pupils’

stereotypical perceptions. The study concluded that rather than aim to recruit more male primary school teachers, it was important that teachers were gender-aware in order to provide pupils with non-stereotypical perceptions of role models.

When staff are considering their approach to developing environmental awareness, timing is also imperative. Given that Liefländer and Bogner (2014) determined that children aged 9-10 years old are more likely to embrace environmental attitudes than children just a couple of years older, then primary school teachers may play a critical role in the development of young pupils' attitudes towards the environment. Naturally, the portrayal of the environment needs to be accurate and engaging, but additionally it must appeal to given age groups. That is, the authors' earlier findings that "*younger students have a higher connectedness to nature than older students*" (Lieflander and Bogner, 2012, cited in Lieflander and Bogner, 2014, p. 9), supports the argument in favour of targeted teaching especially considering the relatively small window of opportunity. However, although the author refers to maintenance of environmental attitudes by younger pupils (ibid. p. 10), it is unclear for how long the pupils retain these attitudes.

Staff as facilitators and guides

Being clear about the roles of staff and pupil, is important, but it is also necessary to ensure that staff carefully consider how to both involve pupils in actions and judge the outcomes of these actions. It is noted in a study by Short (2009) that educators can help future citizens to develop the skills needed to understand and tackle environmental issues and contends that pupils can gain positively from almost any involvement in an environmental action. But he goes on to argue that the way educators do this is important. That is, it is more than simply encouraging environmentally responsible behaviours such as recycling, and equally educators must take care not to prescribe actions. Of utmost importance, according to Short, is the recognition of the link between EE and environmental quality (EQ). He emphasises the value of appraising the impact of EE actions on environmental conditions rather than simply evaluating environmental behaviours, knowledge or understanding gained as a result of an EE programme.

A curriculum focused on "*assessable "facts" rather than issues worthy of debate*" (Dunlop, Atkinson, Stubbs and Turkenburg-van Diepen, 2021, p. 293) can be problematic for staff who wish to support the development of climate activism in schools by discussing complex climate-related issues, such as fracking. A full and focused curriculum also means that there may be limited time available to provide opportunities for meaningful debate. Additionally, staff may feel apprehensive regarding the prospect of potentially encouraging bias or disruptive actions. However, the authors suggest an emphasis on

teaching how to “*make good arguments based on sound reasoning and how to avoid errors in reasoning*” (ibid. p. 297). This includes the consideration of divisive tactics used in bad arguments sometimes offered by politicians and organisations. The authors determine that young people must be given the opportunity to voice their beliefs regarding climate crisis activism and schools have an important role to play in the development of skills needed to form arguments and to make choices.

Expectations, roles and responsibilities of pupils

A range of methods support the learning process, for example asking questions, direct experiences, and observing others. In a school environment, a variety of these methods may be employed to support learning, including active pupil participation and observation. Both of these may offer pupils the opportunity to develop their understanding of environmental issues, and they are presented in the following sections.

Active pupil participation

Prior to the Government ending its support of the Sustainable Schools Initiative in 2010, the effectiveness of provision of sustainable development in schools was inspected by Ofsted. Generally, the findings of Ofsted visits to schools showed that SD was “*a peripheral issue, often confined to extra-curricular activities and involving only a minority of pupils*” (Office for Standards in Education, Children’s Services and Skills, 2008, p. 5). Consequently, it was recommended that schools should provide opportunities for all pupils to actively participate in the promotion of sustainability (ibid. p. 6) and noted that best practice occurred when this became part of “*everyday life*” (ibid. p. 9). Although ambiguous because the report did not clarify what is meant by this phrase, reference to the “*school community*” (ibid. p. 9) and “*everyday life*” seems to signify a typical, routine day in school.

The notion of schools encouraging a holistic approach towards promoting environmentally responsible attitudes and behaviour is echoed by Gayford’s WWF report (2009). The research is primarily concerned with the development of sustainability in schools and the value placed on pupil participation, e.g. in an evaluative role or in the form of the “pupil voice” whereby School Council decisions are communicated and acted upon. It is clear that the study values the involvement of pupils and encourages understanding of issues relating to, e.g. energy and water use and reasoning behind recycling (based on the “eight doorways” devised by the Department for Schools, Children and Families as part of their Framework for Sustainable Schools). Additionally, Gayford’s further study for WWF (2010) provides many innovative and practical examples of pupil-centred approaches used by schools and offers examples of pupil participation in the context of data handling (p. 39) or geography

(p. 27) for example. It highlights the various pedagogies involved, such as stand-alone topics, cross-curricular approaches and collaborative tasks. It is unclear whether pupils routinely perform everyday actions such as recycling or switching off lights. Nevertheless, it cannot be denied that the examples provide fine indicators of a curriculum-based approach.

Although a study by Percy-Smith (2010) supports increased opportunities for young people and children to participate in decisions in their everyday settings rather than in organisations which are far removed from their reality, the author questions the benefits of this participation. That is, he believes that there has been a disproportionate focus on simply encouraging participation and insufficient effort made to ensure that there is participation throughout the process of *“all phases of the planning and decision-making cycle”* (ibid. p. 110). Moreover, Percy-Smith believes there has been undue focus on using a structure of *“representative structures of participation”* (ibid. p. 111) e.g. the use of delegated individuals to participate in meetings. It is thought that this structure restricts the input to a small number of people and limits the means to become involved in making changes. As a result, the author argues for increased emphasis on empowerment whereby young people develop the confidence and abilities to offer ideas and importantly, enable changes to take place. Furthermore, Percy-Smith highlights the need to change and adapt to encourage a collaborative approach and a willingness to trust young people’s capabilities.

If children and young people are to develop the motivation and competence to become involved, they must be able to effectively participate in processes and decision-making. Yet Hart’s examination of children’s participation has shown that participation can be limited and, in some cases, tokenistic (1992). This thereby restricts the opportunities for collaboration and engagement in activities. To serve as a guide to understanding effective planning for participation, Hart organised an eight-point scale (or “ladder”) to show the range of children’s involvement in projects or initiatives. Hart’s Ladder of Participation diagram (ibid. p. 8) is based on Arnstein’s categorisation of adult participation (1969). Arnstein believed that there are citizens who do not have an opportunity or the power to participate and so formed the Ladder of Citizen Participation to illustrate the range of participation. This was an effort to *“encourage more enlightened dialogue”* (ibid. p. 216) regarding the *“increasingly strident demands for participation from the have-nots as well as the...responses from the powerholders”* (ibid. p. 217). With respect to children’s participation, Hart’s Ladder provides clear reference points to enable reflection on practices and to highlight key characteristics of involvement ranging from non-participation to incremental degrees of participation. Moreover, it offers an invaluable means to consider the levels of pupil involvement in the process of developing environmental awareness in an Eco-School. For instance, it can be used to identify expected and actual levels of participation of pupils

(including the Eco-Committee) in the environmental decision-making process. Considering pupil empowerment to lead changes is a key element of the Eco-School ethos, Hart's Ladder offers the means to identify the actual and expected degree of pupil participation in school. Hart concludes that despite children having the competency to participate and act as agents of change there are issues that must be considered. These include school and family settings and their apparent reluctance to enable children to make changes.

Despite recognising the importance of acting as facilitators and encouraging pupils to take an active role in their learning, it seems that a number of Finnish teachers have continued to view pupils as passive learners (Ahonen et al., 2014). The teachers viewed their own role as transmitters of knowledge and understood the importance of encouraging pupils to take active role in their learning but were unsure how to encourage this. However, it is insufficient for educators to simply instruct and the importance of ensuring pupils are viewed as active participants in their learning cannot be overestimated. A study by Owens (2005) is of interest because it investigated the environmental experiences of young pupils from Reception to Year 2. She noted *"how these [experiences] had been laid down in memory and how this affected the development of their values, skills, knowledge and capacity for action"* (ibid. no page number). The study concluded that *"first-hand experience"* involving teacher modelling, plus the school ethos, greatly contributed to pupils valuing their environment. The Eco-Schools ethos provided a sense of community and purpose, whilst pupil participation in making decisions supported the development of values and attitudes and critical thinking. Of particular interest was the importance placed on *"peer interaction"* (ibid. no page number) which Owens suggests is part of the *"hidden curriculum"* (ibid. no page number) whereby children discussed their thoughts and ideas.

Support for the notion of pupils as active participants is also evident in a study related to carbon literacy. Satchwell's research examined the idea of children as *"carbon literate citizens"* (2012, p. 2). The author asserted that although knowledge does not necessarily lead to action, the value of pupils engaging with environmental texts, such as a newsletter about Eco-Schools lunches and signs at a council recycling centre, is that it can lead to a deeper understanding, i.e. pupils becoming carbon literate. The social aspect of events related to the environment, plus the importance of enthusiastic or *"wholehearted"* engagement of the children, should be taken into account when considering the relationship between EE and action. It is vital that children join in or engage with activities if they are to stand a chance of recalling the reasoning behind them. Indeed, in the participating schools, the *"eco-initiatives were often spearheaded by non-teaching staff...often being dependent on individuals...rather than a whole school policy"* (ibid. 2012, p. 8) which seems to demonstrate either

that non-teaching staff were given the opportunity to lead the initiatives or that the initiatives were not considered to be within the remit of whole school policy.

Learning through observation

To what extent the role of pupils is that of active participants or passive learners, is dependent largely on the pedagogy and to a lesser extent, the ethos of the school. Nevertheless, providing opportunities for pupils to learn is clearly an integral part of school life. This process of learning can include direct teaching methods, involving a period of instruction followed by practice or perhaps through the observation of a teacher modelling processes or techniques such as how to draw a graph or how to use a piece of equipment. The teacher will be modelling behaviour and this will be observed by the pupils, either by chance or as an element of a planned lesson. Bandura maintained that behaviour is learned through the process of observation (1971), either through planned modelling or by chance. Importantly, Bandura emphasised that if a behaviour is modelled regularly or by someone with power or status, then the observer is more likely to learn the behaviour. So, it seems that a pupil observing a teacher perform an action could be influenced effectively enough to recall the action and perform it themselves. Critically, according to Bandura, the pupil is participating in the learning process as they determine a link between the action and its outcomes. This active processing of information seems to suggest more than mimicry.

Yet whether pupils are simply mimicking their role models is still open to question. It could be inferred that *"in primary school where pupils are still sensitive to learning and imitating"* (Brecko, 2005, cited in Lukman, Lozano et al., 2013, p. 94), the authors perceive pupil behaviour as no more than copying that of their role models. Whereas, in another study (Rogoff et al., 2003), the authors suggest that learning through observation is more than mimicking. They argue that *"observation and listening -in"* or *"intent participation"* (ibid. p. 178) involving careful observation with the expectation of joining in, can present opportunities for children to learn. This is considered to be quite different from pupils as non-active participants in the process of learning (*"assembly-line instruction"*, ibid. p. 195). Although the study is from a psychological perspective, it is equally pertinent to a social science viewpoint as it explores the role of school and how it could potentially enable pupils to observe and then participate in environmentally responsible actions.

Advantages and disadvantages of approaches, actions and procedures

There are various approaches that can be used to develop an understanding and awareness of environmental responsibility (United Nations Educational, Scientific and Cultural Organization, 2017).

These generally fall into categories and include: a whole-school, action-based, holistic and long-term commitment. Schools may adopt some or all of these methods to develop sustainability in school. The importance of taking into account the context to ensure effective pedagogy is noted, e.g. ability levels, physical environment. Teachers may establish routines to maintain flow and order, use a range of questions to facilitate discussion or establish paired or small group work in addition to whole-class instruction.

A school may seek to implement procedures, actions and approaches designed to develop environmental awareness and responsible behaviours. The following sections, “Drivers” (sub-sections: *Cultural and emotional context for shaping behaviour, Habitual and routine activities, Design of the school building and grounds, Energy consumption monitoring*) and “Barriers” (sub-sections: *School leaders, initial teacher-training and professional development, Participation and power relations, The gap between attitudes and action, Contextual factors, old habits and policy*) outline a number of advantages and disadvantages related to engagement with and application of such practices. Given the uncertainty regarding the number of influencing factors the subsequent sections review a selection which are thought to limit or aid the formation of environmental understanding and behaviour. These include routines and habits which can work in favour or against the development of a sustainable lifestyle; the design of the school building which may pose challenges; varying opportunities to effectively participate and the potential for making changes.

Drivers

Sustainability actions may be facilitated or driven by an appropriate ethos, infrastructure, motivation, enthusiasm, time and leadership (Rickinson, Hall and Reid, 2016). These and other factors influence and encourage the development of environmentally responsible practice (see Methodology: *Theoretical Perspective: Social Practice Theory*), yet there are additional drivers which are not directly related to a desire to develop a more sustainable lifestyle. Research by Nordlund and Garvill (2002) suggest that each day people are faced with choices and although they may consider themselves to be environmentally responsible and hold pro-environmental values they may not always translate into environmental behaviour in contexts such as the home or workplace. This may be due in part to whether collective or individual interests are being served (ibid. p. 743). However, the authors go on to suggest that motivations other than a desire to protect the environment may lead to pro-environmental behaviour. Therefore, recognising reasons such as “*conserving energy in the household to save money or using a bicycle... to get some exercise*” (ibid. p. 754) potentially serve to develop a greater understanding of the range of influences on environmental behaviour. Additionally, making efforts to describe the comparative ease of conducting certain environmentally responsible actions

may prove to be beneficial. For example, a thought-provoking point is made by Fielding and Head (2012), when they conclude that “*communicating to young people about pro-environmental actions that are easy to do...could provide pathways to greater engagement*” (ibid. p. 184) as this may be interpreted as relatively simple actions such as recycling or reuse. However, there is a danger here of underestimating the competencies of young people and the scale of the problem to be addressed.

There is an array of factors that influence environmental practice. For example, there are over 300 studies that have been devoted to studying possible personal and social influences (although some can overlap or cancel each other). So, it is difficult to ascertain with certainty what influences environmentally responsible behaviour. However, Gifford and Nilsson (2014) have reviewed studies examining personal and social factors that can influence behaviour, e.g. knowledge, age, religion, locus of control, and norms. In addition, the authors noted that some people behave in an environmentally responsible manner for reasons other than the influence of personal or social factors. They may cycle for health reasons or ensure homes are well insulated to save money on energy bills.

Cultural and emotional context for shaping behaviour

Research investigating what may drive or encourage environmental behaviour, has also been undertaken by Maiteny (2002). The study stresses the importance of context for shaping beliefs and actions and the value of “*emotional involvement*” (ibid. p. 305), i.e. whether “a person’s heart is in it” as key to the adoption of an environmentally responsible attitude. Moreover, the examples given in the study do not always involve overtly environmental experiences; rather they are simply experiences which are a turning point for an individual’s outlook, such as a walk in the garden or the observation of a dress made from material donated several years earlier.

Other important factors go some way towards driving environmentally responsible behaviour and these include the influence of literature and culture. Firstly, research undertaken by Mobley, Vagias and De Ward (2010) hypothesise that reading environmental literature is a stronger predictor of environmental behaviour than gender, education or environmental attitudes. The authors suggest that the experience of reading nature-based literature could lead to greater interest in or sensitivity to the environment and associated behaviour. Of course, at the outset there needs to be a willingness or sufficient interest to read environmental literature, but the authors determined that reading such literature is a more accurate predictor of environmental behaviour than socio-economic factors such as gender or level of education. This study therefore provides an additional “*variable that taps into the role of formative experiences in shaping ERB*” (p. 436). Secondly, Canadian culture and its fondness for camping forms the context of a study by Eagles and Demare (1999). This influence on the formation

of environmental attitudes is documented by the authors who, understandably, recognised that participants of an EE programme are already likely to possess pro-environmental attitudes which had been formed over a lengthy duration of time. Bearing this in mind, they suggest that the prevalence of influential nature-based media (film, television, books) could act as a boost to environmental attitudes and the camping experience may serve to reinforce previously held views. Although the authors point out that *“the key influences - talking at home, watching films and reading - occur at home and at school”* and are *“long term and continuous”* (ibid. p. 5) they do not elaborate on the extent to which they feel school plays this influential role and in what ways.

Habitual and routine activities

To examine the environmental behaviour of members of the school community and choose to dismiss the role of habitual and routine activities, would be imprudent. Schools provide numerous examples of routines which initially need establishing and then require reminders. Such procedures and practices range from lining up to enter the classroom, to taking turns whilst using equipment. Routine behaviours take place throughout the day and generally, they do not require decisions concerning a course of action and so the flow of the day can continue. Habitual or routinised actions that take place in the home, at work and in schools, are often developed over time and can form long-lasting behaviours. According to Steg and Vlek (2009), *“habits refer to the way behavioural choices are made, and not to the frequency of behaviour”* (p. 312). Environmental literature has recognised the significance of habitual behaviour and how it may potentially positively or negatively impact on environmental behaviour, such as recycling (Dahlstrand and Biel, 1997; Ouellette and Wood, 1998; Steg and Vlek, 2009). However, it has been noted that due to the number of distinct steps and variables involved in sustainable actions such as recycling, measurement of habit can be difficult (Knussen and Yule, 2008). Dahlstrand and Biel’s study investigated factors contributing to the development of environmentally responsible behaviour and concluded that both the strength of habit and attitudes must be taken into account if new behaviours are to be maintained (1997). Importantly, bearing in mind the complex multi-step nature of making and breaking habits, it was found that understanding the *“promoting factors”* relevant and specific to each step is key to the formation of new habits. Such influencing factors may involve prudent choice of persuasive information (e.g. where to recycle batteries) or provision of positive feedback (e.g. saving money). Of equal importance, the authors note the value of taking the initial step towards forming or changing habits which may be harmful to the environment, whilst emphasising the need to provide appropriate input during later stages of habit formation. An earlier study by Lancken et al. examined links between forms of travel, attitudes and strength of habit (1994). This work notes the difficulty of changing attitudes towards

available forms of travel when the habit, that is the choice of means of travel, is strong. The use of a persuasive information campaign is one approach cited to influence choice of travel mode. In this instance, the authors conclude that habit plays a critical role in selecting a form of travel and suggests that developing awareness of various forms of travel may be more useful once the strength of habit has reduced and ideally at a time when the necessary infrastructure is in place.

Regarding every day or routine environmentally responsible behaviour and values, the examination of battery sorting behaviour, potentially leading to recycling, was studied by Rioux (2011). Although it does not directly involve the participation of school staff, other than to accept and log collections, it does serve to highlight *“the importance of environmental values in adopting the behaviour of collecting used batteries”* (ibid. p. 368) by teenagers over a 4-month period. The author investigates factors which potentially serve to predict such behaviour, reasoning that the outcomes may assist in improving future practice. A notable point is reference to Emmons whereby the behaviour itself is questioned:

“whether we were...identifying a pro-environmental behaviour or simply an environmental action...did it involve individual, spontaneous and self-determined actions which could become a habit...or actions carried out by a group during a given period and thus not stable over time?”
(ibid. 1997, cited in Roux, 2011, p. 369).

Design of the school building and grounds

The design of the school building and grounds may assist the development of environmentally responsible behaviour. This could involve the installation of outdoor seating made from natural materials, the positioning of nest boxes to encourage birdlife into the grounds and the development of a vegetable patch with associated flowering plants and grasses to attract pollinators. A case study involving a secondary school seeking to provide whole-school learning experiences that help pupils live more sustainably, described their outdoor area that includes a small orchard as well as ponds and a garden (Harris, 2008). This report is specific regarding pupil’s participation and whether elements of practice involve a selection of pupils (for example members of the school council with responsibility for reviewing school policies) and when all pupils are involved (such as access to the school grounds). Although the school enables all pupils (by means of pupil-tutor interviews) to offer their views, thereby informing future school practice/policy, it is unclear whether this pertains to the drive towards sustainability. Having said this, the report does go on to mention that senior management seek to involve pupils in the review process where possible. The design of a school building can also impact on the drive towards sustainability. A new school can be designed with careful consideration of

materials, water consumption and even the orientation of the building itself during the design stage. Sensibly, all parties must be in agreement regarding the definition of sustainable prior to embarking upon the design process. Heather Marsden makes a noteworthy point when she discusses the importance of limiting energy consumption during the design stage of a sustainable school building. She highlights not only the value of involving pupils in the monitoring of water and electricity consumption, but also the benefit of *“not hiding this [power generation] equipment in the building fabric and running energy campaigns on their usage”* (Marsden, 2007, p. 41). Additionally, Marsden suggests relaying energy consumption levels on plasma screens so that pupils, and staff for that matter, can be consistently aware of energy use in the school, rather than a limited number being directly involved in collecting data.

Energy consumption monitoring

Research from Godoy-Shimizu et al. (2011) examines the consumption of energy in English schools by using Display Energy Certificates (DECs) which provide evidence of metered usage. The research emphasises the importance of understanding the energy performance (use and emissions) of non-domestic buildings as they account for 19% of national emissions. Understanding the data from DECs is key if improvements are to be effectively made. Consequently, a database of 12,000 DECs from schools was used to determine what factors contribute to energy consumption, in addition to data from Ofsted about the school, including type, religious character, number of pupils on roll. Although the authors report a decrease in fossil-thermal (heating) use, there has been an increase in electrical energy use and an increase in emissions per pupil and per m². This confirms a prediction of increases in use of electricity and the likelihood of emissions targets not being met. Furthermore, according to Dias Peruera et al. (2014) schools must carefully consider their energy consumption due to their educational purpose and social responsibilities. By making use of school energy certificates and their publicly available data, the research provides a benchmark of energy consumption in school buildings around the world. This benchmarking enables schools to compare their own with similar schools, e.g. in terms of geography, and can help schools to reduce energy costs and improve their facilities for maintaining temperature control indoors.

Barriers

School leaders, initial teacher training and professional development

Research by Evans, Whitehouse and Gooch (2012) examines barriers or hindrances to developing school-based sustainability and how school leaders have overcome these difficulties. Obstacles are

categorised into three main areas: grassroots (e.g. teachers' lack of time and knowledge), administrative (e.g. government focus on literacy and numeracy) and conceptual barriers (e.g. willingness to change and involve the whole school community). It is concluded that the support of school leadership is key to the potential success of projects and initiatives, but there must also be an awareness of difficulties arising from embedded views and priorities. In fact, according to a study of initial teacher training, in order to effectively encourage an understanding of sustainability in pupils, it is important that teachers possess the appropriate knowledge and competency to deliver the curriculum (Wilson, 2012). This largely relies on the extent to which EfS is entrenched in initial teacher training courses. As a result, the authors conclude that there is need to ensure EfS is given a higher priority during the training process, in addition to the institutions being willing to model everyday sustainable practice. However, problems can continue in the school setting as teachers face conflicts between their own ideas and beliefs regarding sustainability and other influences and factors. Vare notes how individual teachers respond to difficulties they have encountered during the implementation of school sustainability programmes (2020). Vare recorded contradictions, whereby one action possibly "*undermined*" (p. 62) another, therefore leading to difficult choices (dilemmas) and decisions. It seemed that respondents did not recognise any contradictions, but analysis showed they offered contradictory examples, e.g. sustainability to underpin the whole curriculum but must avoid a sustainability "bias". Similarly, the author noted contradictory ideas regarding responsibility, e.g. shared responsibility or led by an eco-coordinator. There were also contradictions regarding pupil participation and whether it was to be unprompted or enabled by adults. Yet the barriers to effectively implementing the sustainability programmes were not viewed as contradictions by respondents and Vare believes that instead they need to be recognised if they are to be overcome. Additionally, it was determined that staff were in need of professional development to increase their awareness of policies. They also needed to feel able to confront management/leadership/colleagues about the place of sustainability in school. Overall, the study suggested that the process of becoming more sustainable must be viewed as a series of learning opportunities, rather than preferring to make adjustments, denying there are any issues or harbouring feelings of powerlessness.

Participation and power relations

The processes of participation and power are explored in Robinson and Taylor's study of pupil voice projects. They note that the relationship between adults and children in a school setting is one whereby "*adults hold posts of responsibility and authority in relation to pupils*" (Robinson and Taylor, 2012, p. 33). This underlying culture in schools is considered during their examination of projects and initiatives which seek to encourage pupil participation in the process of making decisions related to

issues which matter to them and give learners an opportunity to be listened to. In addition to illustrating the links between participation and power relations, the authors question whether pupil involvement in student voice projects is able to make a change to the unequal power relations that are evident in schools. However, despite some positive changes resulting from student voice projects it is concluded that the unequal power relations remain.

With respect to issues regarding power and purpose, Noyes (2005) reviewed literature related to the development of pupil voice. The reviews aim to explore the purpose of different approaches to pupil voice, the issue of power relations and the potential for making changes in schools. For example, there is an emphasis on understanding the issues that are important to pupils. Additionally, the author highlights that the consideration of issues from a pupil perspective requires a high level of trust (ibid. p. 536) or a willingness from teachers to consider or act on ideas.

In their discussion of childhood environmental research and environmental learning, Barratt Hacking, Barratt and Scott (2007) highlight the issues of health concerns and the reduced number of opportunities for children to experience the outdoors to engage with their environment and develop environmental sensitivity. In addition, the authors discuss the determination to involve children as participants in decision making as outlined in UK Government and United Nations documents, e.g. *Every Child Matters* (HM Treasury, 2003), but suggest that in reality there are few opportunities for children to do so. In fact, the authors report that adult intervention, perhaps due to concerns about safety, can limit children's opportunities to learn about their environment, yet when given the chance pupils can become agents in their "*environmental learning*" (ibid. p. 536). This type of learning may be informal, e.g. in the playground or part of an initiative to change behaviour. However, the authors conclude that barriers such as the dominant cultural attitudes of adults towards children, can limit participation in the process of gaining information and making environmental decisions (for further contextual literature regarding participation see Literature review sections: *Staff as facilitators and guides* and *Active pupil participation*).

The gap between attitudes and action

It has been the belief of many policy makers that persuading individuals to change their attitudes towards sustainability, will lead to a change in their behaviour (see Welch and Warde, 2015 or Shove, 2010 for further discussion), but it has been determined that this is not necessarily the case. Indeed, it has been argued that there is a "gap" between attitudes and behaviour, whereby an individual may display environmental attitudes and knowledge, but this does not translate into environmentally responsible behaviour (Kollmuss and Agyeman, 2002). Moreover, it has been concluded by Kollmuss

and Agyeman that there is no clear answer to explain this disparity. In fact, Zsóka et al., (2013) concur with this view and note the difficulty of identifying clear links between environmental education and environmental action. Their study revealed areas of environmental education which were in need of development and discovered that financial limitations, convenience and the “*lack of structural conditions*” (ibid. p. 133) are perceived by university students as barriers to environmentally responsible behaviour, despite their environmental awareness. In addition, it was shown that both groups of students practised “*light green*” (ibid. p. 136) activities such as recycling and saving energy (which require minimal lifestyle changes), but the university students have greater awareness of the relationship between consumption and the impact on the environment, than the high school students. If we are to comprehend the perceived gap between environmental concern and action, there is a need to understand the behaviour and attitudes of young people (aged 18 to 24). This is according to a study by Fielding and Head (2012) which argues that young people need help in recognising that they can make a difference by behaving environmentally responsibly. This view is similar to that of Mead et al. (2012), but the point is developed when it is stated that young people feel powerless to tackle environmental issues. This belief that they have little control over events is summed up as their locus of control (ibid. p. 172). In addition, since government has a central part to play in making changes this seems to further remove the ability of the young to make a difference.

However, there is also a belief that environmental education methods can lead to missed opportunities for pupils to think critically and develop their action competence. For example, Courtenay-Hall and Rogers (2002) question certain aspects of the Kollmuss and Agyeman knowledge-behaviour model, including the use of categories in their definition of environmental behaviour which distinguish between indirect environmental action (e.g. political activities, environmental writing) and direct actions (e.g. recycling, reducing driving). Since Kollmuss and Agyeman seemingly emphasise direct action, this stance is perceived by Courtenay-Hall and Rogers as highlighting the value of direct actions at the expense of indirect actions. As a result, if the model is used by educators, it is argued that this may limit pupils’ ability to develop as “*environmental citizens capable of thinking critically and acting competently in the sphere of civic (and not just consumer) action, locally, regionally, nationally, globally*” (ibid. p. 290). Although the authors reiterate the need to recognise the importance of increased environmental awareness, they conclude that Kollmuss and Agyeman’s study is unhelpful in enabling an understanding of why people act as they do, despite successfully outlining the range of factors that can influence environmental behaviour (see Methodology: *Theoretical Perspective: Social Practice Theory* for an exploration of a broader view of practices and environmentally responsible behaviour.)

Contextual factors, old habits and policy

In addition, contextual factors such as income and household size, are thought to contribute to difficulties regarding the uptake of sustainable practices. Poortinga, Steg and Vlek (2004) in their study of household energy use, discuss the link between values and different forms of environmental behaviour and go on to conclude that environmental behaviour may be better explained by examining not only attitudes, but also the ways contextual factors may influence a person's ability to act in an environmentally responsible manner.

Although it has been suggested that habits can assist in the formation of environmentally responsible behaviour (see *Drivers: habitual and routine activities*), research indicates that the opposite can be true. Indeed, it has been argued that problematic consumption habits must be addressed in an effort to develop sustainable practice (Sahakian and Wilhite, 2013). The study focuses on recognising how practices, including consumption practices, are influenced and how they can be changed. It concludes that within practices, some habits involve the unsustainable consumption of energy or food and so by understanding what elements need to be changed, these unsustainable habits can be broken (see also *Methodology: Theoretical perspective: Social Practice Theory*). The formation of new habits and the breaking of old habits has also been examined in the context of revised travel plans (Walker, Thomas and Verplanken, 2015). The authors conclude that old habits can take time to discontinue, and new habits can take time to develop. They argue that a disruptive change in context, e.g. change of workplace location for the World Wide Fund for Nature UK employees, led to a weakening of old travel habits for some workers and the development of new habits for others, yet *"there would be a propensity to revert to old behaviours if the context reverted"* within a given period of time (ibid. p. 15). The authors determined that because habits take time to weaken and strengthen, rather than discontinuing or forming immediately, it may be that people could return to old habits if the cues or context for behaviour are apparent and if new habits are not fully developed. This could be interpreted as a cautionary tale and indeed the authors proposed that *"periods of support would be needed for habit and behaviour change"* (ibid. p. 14).

Old habits are considered to be one of the strongest barriers to environmental behaviour, according to Kollmuss and Agyeman (2002). Although the authors are keen to emphasise that they choose not to debate habitual behaviour in depth, their discussion of pros and cons makes this study particularly relevant to educators. In fact, the authors highlight their aim of facilitating a *"dialogue regarding the most effective ways environmental educators might help develop pro-environmental behaviour at all levels in society"* (ibid. p. 240), presumably including pupils or staff in primary schools.

Additionally, the provision of a school policy outlining staff and pupil environmental roles and responsibilities, may initially appear to be a positive action in the drive towards sustainable behaviour in school. However, in a study by Rickinson (2001) it was noted that possession of a school environmental education policy does not necessarily equate to pupils changing their behaviour. Rather, motivated and informed staff are required to translate programmes/policy into reality, e.g. agents are required to put the policy into practice. This may include an understanding or awareness of the terminology related to environmental education and sustainable behaviour.

Evaluation of environmental education programmes

To determine whether or not environmental education programmes are successfully guiding (or changing) behaviour and understanding, it is prudent to evaluate their effectiveness. When evaluating EE, Stern, Powell and Hill (2014) contend that it is insufficient to rely on measurement of knowledge to ascertain the “*success*” of EE (ibid. p. 603). For example, the authors undertook a review of EE programmes which revealed “*knowledge gain...[was]...a central focus of the EE evaluation field*” (ibid. p. 603). It was questioned why this should be the case and recommended the use of qualitative interviews to gain understanding of why and how programmes work (ibid. p. 603). The report contains a wealth of evidence regarding reasoning, but the authors concede that it is basic evidence, and it was not possible to decisively identify the main elements for success. However, generally it was noted that the following are significant: active participation/direct experience, “*teachers and other adults as role models in developing environmental literacy*” (ibid. p. 600) including the “*delivery style*” (ibid. p. 602) of the educator, “*emotional connections*” (ibid. p. 592) made during the programme and a “*holistic*” approach (ibid. p. 592) involving opportunities to reflect before and after an experience. These outcomes, perhaps with the exception of delivery style, have been noted by Harris (2008), Winter (2008), Lucas et al. (2008), Satchwell (2012) and Gayford (2010).

Garnering the opinions of staff who are involved in the day-to-day application of environmental education naturally provides valuable assessment material. Work by Rickinson, Hall and Reid (2016) focused on the influence of sustainable schools programmes in participating settings. Importantly, the researchers explored responses from staff regarding perceived key elements of the programmes which had “*contributed to sustainability activities in their schools*” (ibid. p. 372). Such aspects included support with both what and how to implement sustainability activities in school, as well as ways to monitor progress. This information can then be utilised to inform and strengthen future programmes and approaches. The study also determined that 63% of participant schools felt that sustainability activities were already practised in their schools, prior to joining the EE programme. However, it was

conceded that the programme did usefully serve to strengthen their approach to sustainability measures.

Defining what is meant by pro-environmental behaviour, environmentally responsible behaviour and environmental actions

What is meant by pro-environmental behaviour, environmentally responsible behaviour or environmental actions can be confusing, perhaps due to similarities of the wording, how such actions are defined and by whom. Yet the terminology crops up regularly in research papers and if we are to examine staff and pupils understanding of behaviour related to energy conservation and waste reduction, it seems logical to also examine more formal explanations to provide a basis for comparison. Understandably, equipping teachers with the skills and knowledge to develop environmental awareness of pupils, seems to be a logical step. For teachers who are tasked with implementing policies and approaches to sustainability, understanding terminology and the concepts they describe can be problematic. Chatzifotiou (2006) charts the 1990 introduction of EE into the English national curriculum, followed by ESD over ten years later. The author argues that primary school teachers view EE as *“an intrinsic part of the school curriculum and school life”* (ibid. p. 376) taught either as a topic or using a cross-curricular approach. The teachers did not view EE as a separate subject, but as a topic that had been taught very generally, in many schools, for a long time. Furthermore, EE links to EFS were unclear to many teachers, partly due to a lack of understanding of the origins of EE and little training for ESD.

The meaning of pro-environmental behaviour is explained in a study by Kollmuss and Agyeman (2002) which seeks to explain the reasons for a perceived “gap” between attitudes and behaviour, e.g. why individuals may possess attitudes that seem to favour protecting or conserving natural resources and the natural world, but do not behave in a manner that suggests they have an interest in such issues. The authors explain their meaning of pro-environmental behaviour as *“behaviour that consciously seeks to minimize the negative impact of one’s actions on the natural and built world”* (ibid. p. 240). This conscious reasoning is interesting because it suggests a deliberate action to curtail use of resources, with concern about the environmental impact being the primary reason behind it. Rioux (2011) concurs with this definition and adds the term “environmentally friendly” behaviour as an interchangeable term. In addition, Rioux introduces the term *“environmental action”* to describe an event, in this case battery collection in preparation for recycling, that is undertaken for a given amount of time and not likely to become a habit. She also highlights the *“self-determined”* nature of pro-environmental behaviour, which again is consistent with the conscious reasoning suggested by Kollmuss and Agyeman.

Although sharing some characteristics of pro-environmental behaviour, such as a concern for the impact of our choices on the natural world, according to Howell (2013), environmentally responsible behaviour may aim to limit the impact of our actions on the environment, but not necessarily primarily due to concern for the welfare of plants and animals. Bearing in mind that climate change and the adoption of a lower-carbon lifestyle form the context of Howell's study, the reasoning for environmentally responsible behaviour includes a concern for frugality and social justice. However, the terminology seems to encompass a wider range of reasons for taking care to limit our environmental impact, than the term "pro-environmental".

Summary of the literature review

The review provides the context for environmental education programmes developed in response to the global call for action on climate change. In the UK, the Eco-Schools programme offers many schools the opportunity to empower pupils to lead change, whilst developing their awareness of environmental issues and environmentally responsible actions. It seems that teachers are generally viewed as potential role models to pupils and able to demonstrate good practice regarding sustainable behaviours. Yet their perceptions of environmental responsibility vary, as does their view of pupils as agents of change or environmental stakeholders. There appears to be a limited amount of literature regarding the environmental perceptions of pupils, yet it seems likely they will have concerns about the environment and how to make changes.

Although the ethos of the Eco-Schools programme expects pupils to play a central role in environmental decision making, there are suggestions that in many school settings pupils have limited chances to put forward their ideas or to gain the competency to make their voices heard. This may be due to a number of reasons, including unequal power relations, varying methods of effective pupil participation and overly prescriptive actions. Moreover, there are a variety of approaches that are used to support and develop environmental awareness and understanding, but it is unclear to what extent the beliefs, expectations and actions of pupils and staff enable meaningful changes to take place.

The Eco-Schools programme is regarded as a popular environmental education programme in the UK and boasts a range of admirable features. Its ethos seeks to empower and motivate pupils, yet there are seemingly few accounts of its impact or influence that stem from pupils. In addition, religion plays a part in influencing environmentally responsible practice, as do habitual behaviours and contextual factors. Given the importance of religious doctrines to Catholic schools, it is important to consider the role of religion and how it may interact with and influence the Eco-Schools programme.

Regarding environmental behaviour, it has been thought that individuals are able to make choices and the onus is therefore on individuals to decide to change their attitudes and behaviour to reduce energy use and limit waste. But the behaviour of individuals is influenced by countless factors and by viewing an environmental or consumption practice in its entirety, this can provide the breadth of insight needed to learn how a practice relies on the agency of individuals to repeat its routines and procedures, how practices change over time and how they are influenced by historical, cultural and emotional meaning.

These issues are explored in the following chapters and pay particular attention to the range of beliefs and actions of staff and pupils in a Roman Catholic Eco-School.

Chapter 3

Methodology

Introduction

In the previous chapter, I provided the context for my research study by reviewing relevant literature with respect to environmental education, the Eco-Schools programme and the perceptions of staff and pupils. In addition to context, the review also highlights areas for further exploration such as influences, roles and expectations. In order to focus the investigation of these areas, research questions have been formed and these are listed below. Additionally, to explore these issues, an appropriate methodology needed to be employed, together with a framework for collecting and analysing data. It was important the methodology:

- Gave a holistic view of efforts to develop environmental responsibility in a Roman Catholic Eco-School
- Enabled information about pupil and staff perceptions of environmentally responsible actions in school to be gathered
- Enabled insight to be gained into pupil and staff beliefs regarding sustainable education

The chosen methodology and methods are introduced in this chapter, which begins with a reminder of the research study's aims and key questions. This is followed by the epistemology and theoretical perspective which serve to inform the methodology and methods. To provide context for the areas described in this chapter, sections include a review of relevant literature. The chapter ends with a summary of the research journey presented within it, and an overview of the exploratory pilot study undertaken to inform and develop investigative understanding and methods in preparation for the main study.

Research aims and key questions

The aim of the research study was to investigate the environmental perceptions, beliefs and actions of staff and pupils in an Eco-School and to examine the influence of the Eco-Schools ethos on their beliefs and actions.

The key questions were:

1. What constitutes “environmental responsibility” from the perspectives of pupils and staff?
2. How are environmentally responsible beliefs and actions manifested in the school space?
3. What are the main outcomes of approaches used to develop sustainability in school?
4. To what extent does the Eco-Schools ethos influence the actions and beliefs of staff and pupils?
5. How do the beliefs and actions of pupils compare with those of staff?

The epistemology and theoretical perspective used to address these aims and key questions are presented in the following sections.

Epistemology

The epistemology behind the research study is constructionism, which focuses on the social interactions of pupils and staff in an Eco-School, their experiences and how they perceive them. The constructionist ethnographer would aim to gather data in the setting and capture the construction of social realities (Holstein and Gubrium, 2007). The aim would be to understand not only what is happening in the setting, but also how the social practices are being formed and sustained. Constructionism argues that the everyday interactions between people are examples of “*practices during which our shared versions of knowledge are constructed*” and these vary historically and culturally (Burr, 2015, p. 5). The focus is largely on social, rather than individual interactions and the belief that knowledge is “*sustained by social processes and that knowledge and social action go together*” (Young and Collin, 2004). By challenging preconceived ideas about how the world is perceived, constructionism offers an ideal approach to consider the interactions, beliefs and experiences of staff and pupils in a Catholic Eco-School as they perform practices which aim to develop environmentally responsible awareness and behaviour.

Within constructionism, ethnographic research is appropriate to gather insight into participants and this is discussed further in the section: *Ethnography*.

Theoretical Perspective

The school setting provides numerous examples of routines and procedures which take place every day and use a range of facilities and resources. In an effort to gain a broad view of practices taking place in school which have been specifically designed to develop an awareness of environmental

responsibility, it is important that staff and pupils are given an opportunity to share their opinions, perceptions and beliefs. Equally, it is critical that these can be analysed in sufficient depth to gain a clear impression of how pupils and staff make sense of the world around them.

Contextual literature

Policy makers, seeking to address the issues posed by climate change, have traditionally referred to behaviour change models to encourage a more sustainable approach to energy use and resource consumption. Shove (2010) argues that by placing an undue amount of attention on studies by economists and psychologists, there have been few changes as a result. Shove contends that this is largely the consequence of *“a strikingly limited understanding of the social world and how it changes”* (ibid. p. 1273) and suggests that an approach involving input from social sciences may be the way forward. Generally, the ABC model referred to by Shove, relies on the premise that values and attitudes of individuals drive behaviour changes that they choose to adopt, i.e. an individual's attitudes (A) are thought to motivate behaviour changes (B) which they have chosen to make (C). Yet the model of behaviour change is considered problematic because it fails to include *“the terms and concerns required to discuss or debate significant societal transformation”* (ibid. p. 1277). Additionally, Shove goes on to argue that environmental policies which focus predominantly on behaviour change aim to *“reinforce the status quo - broadly sustaining existing standards and conventions but doing so more efficiently”* (ibid. p. 1277). Furthermore, Shove contends that in addition to a move beyond the ABC model, there needs to be a retreat from a focus on individual choice regarding behaviour change and instead a willingness to consider the possibility of *“government-led interventions”* (ibid. p. 1282) in everyday life. Similarly, Welch and Warde (2015) contend that sustainable consumption policy has a tendency to focus on *“the huge impact of specifically domestic consumption and deployed behaviour change strategies...which employ individualistic models”* (ibid. p. 4). The authors believe that a change in perspective, e.g. from a focus on the individual to a focus on practices and how they are organised, may shed light on the problem of consumption and environmental impact. Moreover, the study highlights the benefit of employing practice theory to circumvent the perceived impasse of the attitude-behaviour *“gap”* whereby environmentally responsible attitudes do not necessarily lead to sustainable behaviour (ibid. p. 5). Indeed, they believe that an emphasis on the perceived gap between behaviour and attitudes has formed the basis of many policy interventions and has relied heavily on the belief that the individual has an almost unhindered choice in their actions.

Indeed, the value-action gap is explored by Blake (1999) who contends that despite a better understanding of the barriers to environmental action, policy makers have simply expected local and public participation, rather than emphasising a need for institutional change. This view is shared by

Spaargaren (2011) who notes that policy makers, despite criticism, have continued to support the individualist understanding of environmental change. The author goes on to introduce practice theory as a balanced approach to agency and structure; one which enables the analysis of the role of technology and infrastructure in the repeated performance of practices, including everyday consumption routines. According to a review by Hargreaves (2011), practice theory can be applied in the analysis of consumption regarding *“the most mundane aspects of everyday life (e.g. cooking) to structured activities in institutional settings (workplace environmental behaviour)”* (p. 6). Hargreaves’ review outlines articles which demonstrate this range of applications of practice theory, including their study focusing on behaviour change in the workplace. Hargreaves’ 2011 review determines that social practice theory can provide a broader, more holistic view of behaviour change than conventional approaches which concentrate on the individual and their values and attitudes. The author describes the significance of moving this focus away from individuals making decisions about social practices (and the *“contextual barriers”* constraining them, *ibid.* p. 82) to a focus on the practices themselves. The author recognises the skill of individuals as they engage with everyday social practices and emphasises the importance of changing the practices rather than urging individuals to make changes to their decisions. Significantly, the study determines that by applying a social theory approach to the analysis of practice, links (which may have previously remained unnoticed) can be shown between infrastructure, power relations and other practices. This insight into the breadth of conflicting or connecting practices and social interactions taking place in everyday life, is considered to be invaluable for understanding how social practice shapes the life of individuals.

Naturally, it is important to recognise what the term “practice” refers to when considering sustainability and consumption. In his 2005 article which considers the use of theories of practice and the analysis of consumption, Warde emphasises that practices are made up of both *“doings and sayings”* (2005, p. 134). Using motoring as a useful example, Warde illustrates the definition of a practice as involving *“equipment and skills, and also shared, yet differentiated, understandings, procedures and engagement”* (*ibid.* p. 137). Importantly, the author defines consumption and then stresses that this is part of practice (a moment) and is not a practice in itself. Warde perceives consumption as resulting from the organisation of a practice, rather than from personal or individual choice. However, participants (agents) may have a range of understandings and skills, thereby leading to differentiation within the practice. Equally, the author highlights the differing paths in the development (history) of practices due to *“the institutional arrangements characteristic of time, space and social context”* (*ibid.* p. 140). Furthermore, a practice would be expected to have a set of procedures that can be reproduced and serve to direct behaviour, as evident in many institutions such as schools. Warde suggests that *“such formal and informal codifications govern conduct within that*

practice though often without much reflection or conscious awareness on the part of the bearers" (ibid. p. 141). Such habitual or routinised actions are highlighted in theories of practice. Examples of this type of action in an Eco-School would include efforts to reduce everyday consumption such as routinely switching off a light when leaving a classroom or placing used paper in a recycling bin. Sahakian and Wilhite (2013), in their study of practice theory in practice, argue that everyday habits can be problematic in relation to sustainability. They believe that *"the stubbornness of habits depends on how deeply anchored the habits are in relation to the three pillars of practices"* (ibid. p. 28) and so it is necessary to address at least one aspect in order to break the habits of consumption.

Routines are considered to be firmly established conventions but may be subject to changes as participants *"adapt, improvise and experiment"* (ibid. p. 142). According to Warde, producers seek to persuade agents to improve their practice by buying the latest products thereby driving consumption. Importantly, Warde makes a point of highlighting the value of internal rewards derived from practices, irrespective of the perceived level of prestige. The article concludes by noting the type of questions which should ideally be asked when considering practice, for example regarding levels of commitment and how practices develop and affect each other. Indeed, these points, such as the attainment of internal rewards from the performance of practices, served to influence the development of the research questions for the present study.

Regarding agency, a notable point is made in research by Røpke which examines the use of social practice theory to study everyday life and consumption (2009). Røpke states that agency is evident in practice theory *"since human agents are carriers of practices...as knowledgeable and competent practitioners, able to link and integrate the elements ...necessary to perform practices"* (ibid. p. 2493). Furthermore, the author goes on to question how practices "recruit" these agents and how the practitioners manage to deal with several practices during their daily lives. In short, the role of the individual should not be underestimated considering practices need individuals (such as staff and pupils) to act as agents and perform the routines and procedures associated with that practice. Furthermore, Røpke explicitly includes *"interplay"* between individuals (ibid. p. 2492) as an important aspect of practices, e.g. pupil and teacher combine teaching and learning practices to form one practice (ibid. p. 2492). This overt inclusion of interplay (including the role of actors) differs from the accounts of Shove for instance, who prefers to focus on the practices' elements of reasoning, material and competence rather than activities within it.

A practical account of the application of social practice theory is provided by Kadibadiba, Roberts and Duncan (2018) in their study of the practice of water consumption in the capital city of Botswana when its water supply suffered severe disruption. Citizens became resourceful users of limited amounts of

water for everyday tasks such as washing and cleaning. A range of centralised and decentralised water supply systems formed the context of the practices. These water suppliers had been promoting the idea of unlimited supplies of water and over time, consumers had become used to the convenience and comfort offered by increasingly unsustainable practices, e.g. daily bathing, use of washing machines. The research demonstrated that social practice theory is useful for showing how these types of daily consumption practices can change over time and can be affected by their context. Specifically, it enabled an understanding of the role of water supply infrastructure in forming social practices. The authors provide a clear explanation of social practice theory and how it can be utilised to gain a breadth of understanding regarding the reasons why people are engaged in certain practices and where interventions may be implemented if appropriate. Moreover, the authors emphasise the importance of the *“historical, cultural and emotional dimensions of meanings...as they strongly influence the uptake of material objects... and the skills [participants] have or are willing to develop in using them”* (ibid. p. 276). By using the lens of social practice theory, it was evident that parts of practice had changed. The authors summed up the changes to water use by stating they *“required a new array of material objects and new competencies which coalesced to carry new meanings”* (ibid. p. 281). Crucially, the study highlighted changes in social expectations including the user’s relationship with water and the dangers of supply infrastructures treating a finite resource as abundant and limitless. Furthermore, the authors believe that governments and infrastructure suppliers must recognise that participants can change their practices, including the development of resilience and resourcefulness, when making use of the services provided by the utility companies.

As with Kadibadiba et al., a study by Delaney and Fam (2015) of household rainwater use in Australia also showed that practices can change over time and are influenced by context. Although the installation of residential rainwater tanks (RWTs) was viewed by the government as a means to ease the domestic consumption of mains water, it became evident that the installation of the tanks had little effect on consumption levels. Social practice theory highlighted concealed sociocultural factors and how they influenced the practice of rainwater use. According to the authors, behaviour has usually been explained by sociologists as a result of examining structures in society and individual choice or agency. Whereas social practice theory emphasises how the elements of practice (meanings, materials and competency) work together or combine to form everyday, taken for granted routines such as those taking place in a school aiming to develop sustainable behaviour. The authors specifically focused on the meaning of rainwater to householders and how meaning is linked with obtaining materials (the residential rainwater tanks) and competency (understanding how the tank might be used). However, the authors believe that it is important to recognise where the meaning or knowledge has originated from. Consequently, they highlight the historical, cultural and emotional elements of

meaning that are behind a practice, in this case, the practice of rainwater use. Differing historical and cultural perceptions were shown by the authors to create a range of meanings associated with rainwater (e.g. abundant, limited, acceptable outdoor uses) and these were found to be influential as they informed everyday water use practice. Additionally, the study highlighted the emotional meaning of practice whereby the longing to perform a practice is connected to its repetition. Indeed, the authors determine that for rainwater use practices to change, there needs to be a positive emotional meaning to rainwater whereby it is linked to cleanliness. Furthermore, the study went on to conclude *“that the way we “do” a practice and the multiple meanings that accompany this way of doing are as important as the technologies that facilitate the practice”* (ibid. p. 185) and so it is important to consider the practice in its entirety, rather than assuming that the provision of technology alone is sufficient to bring about a change of practice. For instance, in a school wishing to develop sustainable practice, the provision of recycling boxes in each classroom must be accompanied by the awareness of when to use them and the belief that their use will make a difference.

In summary, by applying social practice theory, a breadth of understanding about agency, participation and beliefs can be gained. It can give insight into the ways norms, the school setting and the perceptions of staff and pupils not only provide the meaning behind a practice, but also help to explain differing levels of competency and willingness to use facilities or resources needed to perform practices. Rather than focusing on individuals and their attitudes towards consumption behaviour a focus on the entire practice enables a holistic view of influences which impact on the performance of routines and procedures.

The following section outlines the reasoning for using social practice theory to reveal the thoughts and beliefs of staff and pupil regarding the practice of environmental responsibility in their school.

Social Practice Theory and my own research

The research study aimed to learn more about the pupils and staff of a registered Eco-School. I knew from experience that schools are complex institutions, with a multitude of policies, approaches, influences and resources, which are used, dismissed, accepted and overlooked in equal measure. This leads to a range of interpretations, skills and actions that are evolving or regressing. This combination of elements necessitates a holistic view to appreciate how life in an Eco-School operates. Using the lens of social practice theory, a breadth of understanding can be garnered about the everyday, routine practices that shape the participants’ understanding of their world (Hargreaves, 2011). It is important to acknowledge that practice theory differs from standard approaches to viewing behaviour change, because of its holistic view, with a focus on practice rather than the individual. To understand this, it

is necessary to recognise three components of practice: meaning, materials and competency (Delaney and Fam, 2015). Although there is due consideration of the people engaged in routine tasks, there is a broader view which encompasses not just these practitioners and their perceptions, but also the associated use of resources or infrastructure and the know-how needed to repeat the routines. When this information is combined, it forms a picture of the practice being undertaken. This rounded perspective enables consideration of why a practice occurs, how it changes or can be changed and where the meaning attached to the practice originates from (Kadibadiba et al., 2018). If we consider staff and pupils as performing environmentally responsible routines each day in school, making use of technology, facilities or infrastructure which can facilitate energy and resource conservation it can be inferred that they are involved in practices. As they are the agents involved in performing these practices they learn and develop an understanding of the world around them. In the case of this research study the practices are components within a behaviour change initiative aiming to develop an awareness of environmental responsibility. These “Eco-Schools practices” incorporate the key components that make up the mundane, routinised actions or conventions that are highlighted by the application of social practice theory during analysis (Halkier, Katz-Gerro and Martens, 2011). That is, (i) Meanings: the thinking and reasoning behind recycling batteries, reusing paper, switching off a light; (ii) Competence: the know-how and practical skills needed to limit consumption of paper or share information about energy use; (iii) Materials: storage boxes for paper to be recycled, low energy lighting, water butts, curriculum resources. Within the practice there will be a range of differing understandings and skills, plus a set of procedures (often performed without much conscious thought) that are repeated and direct behaviour. However, these may change as the practitioners “*adapt, improvise and experiment*” (Warde, 2005, p. 142). Indeed, these competencies, in addition to meanings and materials, all serve to shape practices in one way or another. Moreover, social practice theory enables the consideration of practice in its entirety, e.g. its competencies, meanings and materials, rather than focusing on an individualistic view.

Social practice theorists such as Shove have determined that social practice theory marks a positive move away from the established use of behaviour change models to inform policy changes. Models such as these are based on the work of economists and psychologists which, according to Shove, demonstrate insufficient understanding of change within the social world. Indeed, the theorist believes the ABC model has made little impact on the move towards sustainable consumption (Shove, 2010). Furthermore, it is Shove’s contention that behaviour change is not simply a matter of individuals making a choice. Yet the concept of choice:

“lies behind strategies of intervention (persuasion, pricing and advice) which presume that environmental damage is the consequence of individual action and that given better information or more appropriate incentives, damaging individuals could choose to act more responsibly” (ibid. p. 1275).

However, the basis of this more responsible behaviour relies on the identification of its drivers and barriers. Shove believes these are often a confusing and complex mixture of factors, which appear to take into account social context, but do not effectively address the “gap” which exists between attitudes and action, e.g. when environmentally responsible attitudes do not necessarily lead to sustainable behaviour. The use of social practice theory can avoid the difficulties arising from this gap by providing an understanding of “social action” (Welch and Warde, 2015, p. 4), by highlighting previously concealed socio-cultural factors and show how these influence practice for example. Understanding the origins of the meaning or knowledge behind a practice, assists the broader understanding of perceptions. This could be considered to be a necessity given their influence and how they inform practice (Delaney and Fam, 2015). Taking emotional meaning as an example, the need or desire to perform a practice, such as recycling paper or switching off a light, is likely to lead to its repetition and so it follows that if practitioners are willing to perform a task due to positive emotional meaning such as a sense of fulfilment or belonging, then the task will be recurring. By applying social practice theory to this research study, a rounded understanding of the range of meanings behind the practice can be demonstrated, together with insights into what motivates practitioners to engage in the practice and how these meanings influence their willingness to use technology or facilities (Kadibadiba et al., 2018). In a school, these facilities and technologies may be boxes to contain paper in readiness for re-use, recycling bins, computers with energy-saving modes or resources made from natural materials. To what extent these are used by staff or pupils will be dependent on their levels of skill, understanding or willingness to make use of them. Therefore, in my research, an ethnographic methodology is employed to gain insight into these facets of the everyday lives and interactions of members of the Eco-School based on direct observations within the setting. In the following section, there is an introduction to and reasons behind the use of ethnography as the methodology for this research study, together with an outline of methods employed to complete the study.

Ethnography

Contextual literature

Ethnographic research methods facilitate the exploration of routinised behaviours through first-hand experience and encompass the application of personal knowledge to interpret them. In fact, the role

of the “self” is highlighted by Denscombe (2007, p. 69). That is, the author emphasises the significance of the researcher’s personal experience, beliefs and interests and the impact of these factors on the interpretation of data. Denscombe believes that the reader must be informed of “*the self and its perceived influence*” (p. 69) so they are aware of the potential influences from the outset. Jeffrey and Troman (2004) emphasise the need for ethnographic researchers to immerse themselves in the everyday social world of people working together, interacting, adapting and making sense of the world around them. This immersion produces “*thick description*” or a detailed picture of the context of social activity which is necessary for gaining insight into meanings and understanding (Geertz, 1973, cited in Lystra, 1983, p. 32). This view is supported by Denscombe (2007) and Thomas (2009) who note the value of using thick description to clarify observations and give the reader a deeper understanding of people or events from within. Jeffrey and Troman believe that this process of immersion can take some time if it is to effectively lead to meaningful insight, including identifying links between micro, meso and macro levels of research. But to ensure engagement in order to effectively gain this insight, Pole and Morrison (2003) emphasise the importance of the ethnographer’s participatory role in collecting and analysing data. This will provide a version of reality that is truthful and the result of taking contextual factors into account whilst reflecting on the social process (ibid. p. 154). Furthermore, the fact that the researcher is both a participant and a contributor is considered to be a distinguishing feature of ethnography. That is, the authors highlight the role of the researcher as being the main means of collecting and analysing data, as well as contributing “*to the construction of the reality of the situation*” (ibid. p. 155). This dual aspect to their role enables the ethnographer to have first-hand experience of social action, whilst maintaining a distance (from the those at the focus of the study) when interpreting data. By maintaining a “*combination of insider and outsider perspectives*” (ibid. p. 157), the authors contend this gives ethnography its distinctive nature. As with Pole and Morrison, it is the belief of Hammersley and Atkinson (2007) that reflexivity is critical to providing a truthful representation of social actions. Data collection methods may mean the researcher is “in the field” as they interview, listen, observe or examine documents in an effort to learn more about the everyday social context. This is followed by ethnographic analysis of the data which “*involves interpretation of the meanings, functions and consequences of human actions and institutional practices*” (ibid. p. 3). It is noted by the authors that the ethnographic means of studying people is not very different from the way many people learn about the world around them, e.g. by participating, observing, listening and so on. However, a major distinction is that ethnographers are careful to record their data and systematically interpret and reflect on their findings in relation to prior studies. However, before this can take place, the authors explain that negotiation is likely to be necessary from the outset and throughout the duration of data collection. This may involve negotiations with a

gatekeeper to enable access, plus establishing a role for the researcher as they join practitioners during the course of their day.

The importance of understanding the potentially changeable role of an academic researcher is examined by Thomson and Gunter (2011). As former teachers, the authors are familiar with the day-to-day interactions and issues facing teaching staff and school leadership. In fact, during the course of their investigation into bullying in a school setting, their engagement with students and staff led to a series of roles ranging from consultant to facilitator. In addition to this insider perspective, Thomson and Gunter also recognised their identity as outsiders, i.e. as university academics working as consultants within the school. They recognised that their identity as researchers changed regularly, and they became both participants and contributors. They concluded that it is necessary for academic researchers to understand this dual role, rather than expecting a straightforward, binary (insider/outsider) identity when working in a school setting.

Ethnographic methodology

An ethnographer acts as a contributor to the construction of reality, whereby they interpret how the interactions between staff and pupils in an Eco-School make, or construct, the school culture. Additionally, the researcher is viewed as a participant in the collection and analysis of data as they join practitioners in their natural environment or “in the field” such as the primary school classroom or Eco-School. Due to this emphasis on the use of first-hand experience to study what individuals say and do in their setting, I believe an ethnographic methodology is the most appropriate methodology for this research. Furthermore, it is expected that an ethnographer will immerse themselves in the everyday social activities of people working together in a setting such as an Eco-School. This immersion produces a complex and meticulous picture of life which will provide *“the meanings that shape and inform all of social life ...[and how we must read this] ...as if it were a text, to be interpreted”* (Ortner, 2007). This participatory approach, and the resulting depth of knowledge or “thick description” (Geertz, 1973, cited in Lystra, 1983, p. 32), provides a detailed view of the school culture. In turn, this requires careful interpretation to understand the social processes taking place and to provide a truthful version of events (Pole and Morrison, 2003). An ethnographic approach therefore offers the means to understand the complexities of life in an Eco-School as the staff and pupils engage in actions designed to support sustainability, whilst continuing to fulfil the expectations of a demanding timetable of curriculum targets and expectations. Indeed, by adopting an ethnographic approach to consider the findings from interviews with pupils and staff, or the observation of behaviours or the scrutiny of documentary evidence, the meanings behind routine practices and the beliefs of participants becomes apparent. However, it is essential to carefully consider the role of the “self” or

how the researcher's own beliefs and experiences impact on the interpretation of the data (Denscombe, 2007). This is described in further detail in the following section: *Researcher position*. Bearing this in mind, my background as a primary school teacher is helpful for making sense of school culture, such as end of lesson procedures, responsibilities and expectations and available facilities and resources for staff and pupils. Consequently, there is need to be conscious of how past experience and beliefs influence the interpretation of events observed during data collection and analysis. This subjective view enables an ethnographer to perceive events through the eyes of the individuals in their distinct school context. But the reflexive researcher must take care not to miss the opportunity to interpret events, phrases and actions that are simply "taken for granted" or understood by both parties, such as the use of "scrap" paper or class rules.

Earlier in the research process, I intended to use Grounded Theory (GT) to address the study's key questions. Grounded Theory aims to ensure empirical fieldwork is used to link explanations with the reality of a setting. A useful summary of grounded theory is offered by Denscombe (2007) when he states that it is particularly suitable while (i) Using qualitative data; (ii) Exploring new or previously ignored ground; (iii) Studying social interaction; (iv) Studying routine situations; (v) Conducting small-scale research. Furthermore, Charmaz states that the theory may be a systematic approach to gathering rich data, but it is flexible not prescriptive (2006, p. 10). Researchers are urged to make comparisons, jot down memos and streamline the data through the process of coding, to develop a theory, make sense of "what" and "how" questions relating to social interaction. This process "*distils data...and gives us a handle for making comparisons with other segments of data*" (ibid. p. 3). However, despite the methodology facilitating the study of routines and social interaction, I believe the ethnographic approach is more appropriate. This is due to the use of direct observation and contact in the field to gain an understanding of everyday life in school and ensuring members of the school community are given an opportunity to provide their understanding of primary school life. Additionally, in terms of practicalities, the nature of the main study school setting made it highly unlikely that return visits to the school to collect further data for constant comparison (as envisaged by GT) would be possible.

Researcher position

Originally, I worked as a primary school teacher and later as a university tutor supporting trainee teachers during their school placements. During this time, I visited around forty primary schools to supervise students and it was evident that a variety of approaches were used by schools to encourage environmentally responsible behaviour from pupils and staff: from special "Green Week" events to a whole-school, sustainability policy. The schools provide the real-life context for considering the

relationships between the actions and attitudes of pupils and classroom and non-classroom-based staff. In addition, as a primary school teacher, I tried to ensure that environmentally responsible actions were part of my everyday classroom routine. For instance, the children would readily sort paper and card in preparation for recycling or reuse, and reminders to carry out these and similar actions were rarely required.

My personal aims include developing my understanding of the efforts made to foster environmentally responsible behaviour in primary schools. Ideally, I would like pupils and staff to be able to share their views, questions and ideas regarding environmental responsibility and to feel their opinions matter. Their perceptions, particularly those of pupils, are important for the development of sustainable practices in school. The development and practise of sustainable actions could serve to bolster whole school policies of sustainability or environmental programmes, which in turn aim to support national and international guidelines (Martin, 2013).

I am aware that my previous experience of working in schools is likely to shape my interpretation of data, but I feel I can draw on this experience to help me understand the opinions shared by pupils and staff or to recognise the routines and procedures, or to appreciate the range of emotions and thinking behind their actions and interactions.

Naturally, the concepts of validity and reliability must be carefully considered when undertaking any study. How “sound” are the judgements and how appropriate are the choice of methods, are key questions to ask when evaluating qualitative research (Noble and Smith, 2015). These issues are discussed in the next section.

Reliability and validity

Certainly, it is important to ensure the validity and reliability of qualitative research findings, especially considering the need for subjectivity, rather than an objective quantitative approach. Numerous studies have suggested approaches for assessing rigour and trustworthiness, e.g. Forman et al., 2008, Bowen, 2009a, and the importance of ensuring a “*credible and trustworthy*” study (Yilmaz, 2013, p. 321). The value of complex descriptions of the participants and the context cannot be overestimated and Yilmaz emphasises the necessity of a researcher accurately depicting the views of the participants. This idea of the researcher using rich, complex descriptions, is shared by Bowen who supports the compilation of an audit trail to demonstrate when and how information was collected. Importantly, according to Bowen, an audit trail “*provides a means of ensuring that concepts, themes...can be seen to have emerged directly from the data, thereby confirming the research findings and grounding them*

in the evidence” (ibid. p. 307). Therefore, the author provides a compelling reason for employing an audit trail. For this reason, an audit trail has been included for the present study (Table 1).

Triangulation and rigour

Triangulation can be used to gain a richer understanding of research findings. This procedure is described by Turner and Turner as *“the means by which an alternate perspective is used to validate, challenge or extend existing findings”* (2009, p. 171). They go on to define its different forms, including data triangulation and methodological triangulation whilst drawing attention to the use of hard triangulation to challenge findings and soft triangulation to complement findings. Although they emphasise that the method of triangulation can be used to prevent bias by making use of a range of information sources or methods, they advise that researchers are mindful of why they are choosing this approach and make their reasoning clear from the outset, so they are not viewed as simply using soft triangulation to confirm findings.

In chapter 7 of their book, Hammersley and Atkinson (2007) describe techniques that an ethnographer may use to facilitate the process of analysis. Sources of data include formal and informal interviews, observations and documents. As each method of data collection is presented, the potential advantages and drawbacks are offered. The importance of maintaining a reflexive approach during analysis is emphasised to support the development of quality ethnographic research. The importance of remembering to interpret understanding and meaning from the perspective of the participants cannot be overstated.

The rigour of qualitative research can be called into question partly due to the reliance on non-statistical data. Consequently, it is critical that qualitative methods and findings are shown to be reliable. One means of achieving this is to ensure that a range of strategies are employed to confirm credible findings. For instance, Noble and Smith list a number of useful strategies (2015) including transparency, whereby the timetable of data collection is made clear, as is any likelihood of bias, together with triangulation of data collection methods to corroborate and complement findings (Denscombe, 2007) These methods may include scrutiny of sources of information (Lewis, 2012) or collation of field notes during periods of observation for example. In addition, key participants may be asked to review transcripts and the initial stage of analysis to support accurate and reliable collation of data and findings (ibid, p. 78). This combination of methods aims to provide a broad range of data, of sufficient depth and richness to provide a meaningful basis for analysis.

Pilot study: reflections

There are two stages to the study: a pilot and a main study. A pilot study was conducted to inform and develop investigative techniques. The following section briefly outlines the story of the pilot study and offers a reflective summary of this stage of the research process (for full write-up of the pilot study, including associated resources, see Appendix 1). The pilot study provided valuable insight into the difficulties of finding schools willing to participate in research and the feasibility of research questions and methods (Thomas, 2009). I realised at the outset that it would be potentially problematic to find schools able to find time to release pupils and staff as participants in interviews, let alone a school within a 5-mile radius of the university (this restriction linked to my ability to visit the schools). However, potential schools had also been selected based on their pupils' social and economic status (SES) for reasons of consistency and as noted in research regarding Eco-Schools and pupil environmental knowledge and behaviour (Bouve-de Pauw and Van Petegem, 2011). After a dozen schools had been approached for the pilot study (resulting in one response), I realised that it was likely that these criteria or variables had potentially restricted the range of willing schools.

The participating school was led by a Headteacher who was keen to institute energy-saving measures throughout the school and felt that the research would be advantageous. I had offered to write a brief report outlining findings and I believe this was viewed favourably by the Headteacher. It is unclear why the other schools who had been approached were reluctant or unable to participate, especially given the positive response from the pilot study Headteacher. Viewed from the perspective of a former class teacher it may be speculated that the prospect of a researcher who would be observing, scrutinising, questioning and to some degree judging the efforts being made to be environmentally responsible, may have been considered unsettling to some staff. Although I stressed the supportive and non-judgemental role, as well as my own experience working in schools, my presence may have been considered unwelcome and perhaps too reminiscent of an inspection or a critical examination. Alternatively, schools may have been reluctant to share their examples of sustainable routines and ethos, perhaps because they recognised they were making negligible provision for environmental responsible practices in school. In addition to an already busy timetable, the practicalities of finding time to release staff and pupils for interviews or discussions, may have been a factor in the low response rate.

The pilot study highlighted the issue of recruiting participants. I had hoped that a visit to act as a volunteer in the Year 5 class (proposed pupil participants) would enable pupils to recognise me as someone who was supportive and willing to listen, rather than as an adult who simply wanted or expected answers to a set of questions. However, following the visit to school I received consent to

participate from two class members. Furthermore, the Headteacher had urged staff to participate and this resulted in seven teaching and non-teaching staff who had provided their consent. As a result of the low uptake, I felt that if I had given a brief introduction to the research, this may have encouraged more pupils to take part.

I was assigned a day to conduct the 1:1 interviews for a duration of 30 minutes per respondent. Ideally, the interviews would have taken place over the course of two days to enable additional questioning or discussion and to plan for delays starting or ending the interviews due to issues relating to the release of participants. The semi-structured interviews consisted of an initial card sorting exercise, scenario (the provision of photographs and a fictional narrative describing a familiar but not identical context and with questions to prompt astute responses), mainly open questions and a quantitative section involving questions designed to gauge environmental values and behaviour. I had reasoned that this approach would provide ample opportunities for effective data collection within a limited amount of time. However, I realised that the card sorting activity (designed to ascertain respondents' understanding of terminology) was ineffective because there was a need to clarify the procedure at each point and the additional time needed to do this was limited by the strict timetable of interviews. On the other hand, the scenario (and associated questions) provided opportunities for respondents to share their thoughts and provide perceptive responses.

With respect to the interview questions, many prompted respondents to offer their views and beliefs, but there was some replication of similarly worded questions. The second part of the interview was quantitative and although I had amended the wording of the questions, I believe that participants would have benefited from further explanation of terms and issues.

During the pilot study, it was clear that further forms of evidence (in addition to interview data) would be needed to ensure validity and reliability of the findings. Despite initial reservations about managing a schedule of observations in a busy school, it was decided that informal participant observation would be both practical and beneficial. Together with the collation of sources of visual and textual documentary evidence, e.g. photographs of facilities, notices, displays, planning, newsletters, the triangulation of methods was determined to be an effective approach to enabling a deeper understanding of findings (Turner and Turner, 2009).

The process of preparing data for analysis was illuminating because I found the transcription process to be highly time-consuming. (It was determined that for the main study, a professional transcriber would be employed.) However, it did provide numerous opportunities to become familiar with the responses from staff and pupils, in addition to my own well-intentioned, but at times somewhat

leading, prompts and comments. The transcriptions were prepared for analysis by sorting and forming categories of similar (and occasionally different) examples of respondents' perceptions. They were then coded, and the data entered into a Computer Assisted Qualitative Data Analysis (CAQDAS) software package to support its management. The quantitative data was entered into Excel to form graphs, but due to the low number of participants (staff n=7, pupils n=2) and with the exception of simple comparisons of the graphical data, the results were rendered almost meaningless.

I analysed data using my teaching experience and knowledge (the researcher position) but it was important that I took care not to miss the familiar or obvious (Denscombe, 2007). For example, I recognised evidence of pupil participation in recycling procedures. However, I failed to consider if the actions were passive (led by the teacher) or active (led by the pupils) and why. Additionally, despite being mindful of the need to carefully interpret the meanings of participants' responses, I found that I sometimes speculated and made assumptions, drew cautious conclusions or missed meaning altogether. Instead, it is necessary to consider the meanings behind practices, interpret what is being said from the perspective of the respondent and avoid simply describing their ideas and opinions. It was clear that practice, focus and perseverance were required.

Overall, it was apparent that analysis of data during the pilot stage had concentrated on the individual's role in making choices regarding environmental responsibility and how these choices compared with those made by others. This provided quite a narrow view of beliefs and actions taking place in school. Therefore, it seemed that a broader, holistic view of environmental practices, e.g. reasons, changes, facilities and skills, would more effectively reveal the perceptions of pupils and staff in response to the development of environmental awareness and behaviour.

In summary, the pilot study effectively enabled the development of methods, understanding and skills, in addition to providing an opportunity to review key questions and methodology in preparation for the main study. It demonstrated that it is far from straightforward enlisting the support of schools or the participation of staff and pupils. Furthermore, I learned that there is a need to accept limitations and restrictions, and be willing to make changes, modify and reflect on the research process.

Research site

Following the pilot study, the background of the participating school in the main study is that of a registered Eco-School, situated on a busy urban road, with limited grounds and no green space of its own. It is a Victorian two-storey building with large windows yet little natural light on corridors and limited manoeuvre for major adaptations. Importantly, at the beginning of data collection, the school

was keen to attain their next Eco-School award and this largely contributed to the willingness of the school to participate in my study due to the prospect of gaining insight from someone with an interest in sustainability. It was a mutually beneficial arrangement as I could potentially act as a critical friend whilst collecting data. Access to the school offered a fine opportunity to explore the provision of facilities, listen to staff and pupil perceptions of sustainability and investigate approaches used to conserve energy and avoid waste.

Ethical approval and access

The research project had been given ethical approval by the ethics committee at the university, validity of a Disclosure and Barring Service certificate was confirmed and agreed procedures regarding consent and confidentiality were followed. This included the distribution of information and consent forms, which in turn led to pupils returning their completed forms to school (Appendix 2) alongside a signed and dated form from their parent or guardian (Appendix 3). Similarly, staff who were interested in participating, completed their consent form (Appendix 4) and these, together with those from pupils and parents/guardians, were collected from the school. A risk assessment was undertaken and a data protection checklist was completed.

Methods

There are several relevant methods informed by the underlying theoretical perspective and epistemological position of this research. Therefore, the following qualitative methods were chosen to collect data: (i) Observation to provide indications of staff and pupil participation, engagement and consistency of actions for instance; (ii) Interviews to provide insight into perceptions of sustainability and involvement in environmentally responsible practices; (iii) Documentary sources of written and visual evidence such as policies, newsletters, notices and display boards, to provide information relating to approaches, progress and actions; (iv) Questionnaires to offer open-ended questions related to photographs of resources and facilities found in school.

In combination, these methods of data collection provided a holistic approach to address the research questions (see *Data Collection* below).

Naturally, the interview process required participants and accordingly pupils from a Year 5 class (age 9-10) and a range of teaching and non-teaching staff were recruited, interviewed and observed. This is discussed further in *Participants* below.

A qualitative approach to data analysis was used, whereby transcribed interviews were coded based on commonly occurring themes. Notes made during informal observations and document searches were similarly analysed to inform understanding regarding the thinking, opinions and proficiencies of staff and pupils (see *Data Analysis* below).

Participants

Due to my experience of teaching Year 5 (age 9-10) pupils and recognising their ability to articulate their views and opinions, the target population was a class of Year 5 pupils. A local primary school was approached and volunteers invited from Year 5 and across the range of teaching and non-teaching staff to complete and return consent forms. The participants were as follows:

Year 5 pupils: 7

Non-teaching staff (Site Supervisor): 1

Teaching staff (Headteacher, class teachers from Key Stages 1 and 2, Teaching Assistant): 5

Prior to the participants being invited to take part, permission was sought and gained from the Headteacher of the school. A meeting between myself and the appointed school contact took place and we discussed the aims of the study, how the data collection would progress and how the school would potentially benefit from the discussion of sustainability (including a brief report outlining findings to support move towards next award level. See Appendix 5).

Before proceeding with the distribution of staff and pupil information sheets, letters and forms, I introduced myself, the aims of my work and how pupils could participate, to the Year 5 class and their staff. Potential participants (including the parents or guardians of pupils) were given information sheets (Appendices 6 and 7), letters and consent forms. Specifically, Year 5 pupils received a consent form which was included in their letter of introduction. Their parents or guardians received a letter of introduction (Appendix 8), in addition to their information sheet and consent form. Staff received an information sheet, plus a letter of introduction (Appendix 9) and consent form. Written consent from staff, parents, guardians and pupils was required prior to participating in the study. It was made clear that data collected from participants would remain anonymous and they were at liberty to withdraw from the study if they wished to.

I also volunteered to assist with classroom-based activities in the school. That is, I made myself known to the staff and pupils by offering support as a helper in the classroom for several mornings and afternoons, carrying out activities such as listening to children read, preparing resources and

supporting pupils with their work. I had anticipated that I would be asked to assist in a range of classes, including Year 5, in the hope that that they would then feel at ease and likely to be candid when providing responses to questions. However, the volunteering opportunity was limited to a Key Stage 1 class. Nevertheless, this still afforded an opportunity for pupils to become acquainted with me as a person rather than as simply a researcher and provided regular occasions for informal discussions and observation of facilities and actions.

Unfortunately, the number of participants recruited was small and this was likely due, in part, to the school contact failing to approach all members of staff or to reinforce the reasoning behind the research and how it could benefit the school. This was compounded by the pandemic which thwarted hopes of returning to the school (during the new school year) to enlist further participants, namely Year 6 staff and pupils.

Data collection

Detailed examination of questioning methods by Rugg and McGeorge (1999) shows that choosing the most appropriate elicitation techniques and using them correctly, is key to effectively deriving knowledge from research participants. The authors emphasise the importance of recognising the type of knowledge being sought. For instance, observations carried out informally during a first meeting, can demonstrate the use of tacit knowledge, e.g. the performance of a task requiring little to no conscious thought. According to the authors *“however helpful the respondents are, they will omit to mention taken for granted knowledge and will probably never have noticed the extent to which they use tacit knowledge”* (ibid. p. 17). It is concluded that making the correct choice of techniques is essential if researchers are seeking to acquire meaningful information. That is, regarding tacit knowledge, a respondent may not be able to provide a step-by-step account of their actions, due to the whole action being viewed as habitual and without need for conscious thought. Similarly, the authors warn of the danger of being unaware of “taken for granted” (TFG) knowledge that is not normally communicated to *“non-experts”* (ibid. p. 11). An example being phrases and routines familiar to those working in primary schools but would perhaps be unfamiliar to someone from outside the sphere of primary education, for example, the “pencil sharpening monitor” and “hands up”.

Bearing this in mind, to learn more about the environmentally responsible actions and beliefs of staff and pupils in a primary school, relevant methods were employed to better understand their views. These methods were chosen to link with the overall constructionist approach and methodology. For both adults and children, interviews, observation and examination of documentary sources of

evidence were used as data collection tools (questionnaires are used with pupils only: see *Limitations*). Each method is described below, beginning with an audit trail of their use.

Table 1. Audit trail

Method	Type of data	Date	Evidence
Questionnaires: Year 5 pupil participants N=7 provided, 6 returned	Open questions related to photographs	Spring term January 2020	Pupil beliefs and understandings. Changes in school practice, if any.
Interviews: Year 5 pupil participants N=7 (1:1 interviews with the exception of one interview which involved two participants) Duration= 15-20 minutes per interview	Focused, semi-structured open and closed questions	Spring term January 2019	Pupil perceptions of environmental responsibility.
Interviews: Staff participants N=6 Duration=15-20 minutes (NB with the exception of one interview which lasted for 45 minutes)	Focused, semi-structured open and closed questions	Summer term July 2019	Staff perceptions of environmental responsibility.
Documentary evidence: written	Eco-Committee meetings, Eco-review, Action Plan, medium term curriculum planning	Summer term May 2019	Pupil participation, decision-making, assessment and targets. Staff assistance. Materials to incorporate awareness of issues into curriculum.
Documentary evidence: visual	Photographs taken of facilities, notices, displays, resources, Eco-Noticeboard, Eco-Code	Spring term January 2019 Summer term May, June, July 2019	Programme of informing, involving, objectives and commitment to actions. Provision of facilities and resources to enable practice.
Observations	Participant, informal observation in classroom, corridors, staffroom, playground. Attendance of Eco-Committee meeting. Informal feedback from staff and Key Stage 1 pupils.	Autumn term November 2018 Summer May, June, July 2019	Pupil and staff participation. Programme to keep whole-school involved and informed.

Documentary evidence

Gaining knowledge by searching sources of documentary evidence is explored by several researchers, including Ahmed (2010) and Bowen (2009b). Ahmed provides an introduction to the use of documents, as well as a summary of the advantages and disadvantages of documentary analysis. As with other researchers, he emphasises the need for rigour and care when processing the sources of evidence and proceeds to carefully outline each area to be checked, e.g. authenticity, representativeness. Bowen, in their study of community life, also explores document analysis as a

source of data in qualitative research. They supply an effective example of how and why documentary sources can be utilised and believe the use of documentary evidence provides a “*complementary data-collection procedure in support of triangulation*” (ibid. pp. 34-5). Indeed, the examination of documentary sources to support or refute data collected from other sources is advocated by Lewis (2012) who utilises a range of documents during her study. These written and visual sources of evidence “...were treated as objective means for making inferences about recorded realities” (ibid. p. 90) and served to support the use of questionnaires and observation.

In much the same way, for this present research, school noticeboards, classroom displays, newsletters and policy documents provide evidence relevant to the research questions and can be broadly grouped as follows:

- Classroom based: including display boards, pupil workbooks, notices displayed in the classroom, topic planning
- Whole school focus: including policy documents, newsletters to parents, corridor display boards and notices

The classroom-based sources provide insight into pupil perceptions of sustainability, e.g. workbooks and displays feature language and images relating to environmentally responsible actions, albeit influenced by the curriculum and the teacher. Whereas a school sustainability policy pertains to a whole-school approach to reducing waste, heating costs and water bills. The document provides insight into the Headteacher’s approaches to highlighting energy consumption in school and ways in which staff and pupils are expected to embed sustainability in school.

Due to the Eco-Schools status of the site, display boards prominently present Action Plans and an Eco-Code; these elements forming part of the Seven-steps to becoming an Eco-School (Eco-Schools, no date, b). These visual displays demonstrate ways in which the school aims to develop an understanding of ways to approach a sustainable lifestyle in school.

Further sources of informal and formal written and visual evidence were accessed in preparation for interrogation of their contents. It is important to consider several points when collecting data from documentary evidence, e.g. why was it produced? What does it mean? Who is it aimed at? Is it biased? Notes are made and photographed (if appropriate), to aid later analysis.

Although using documentary evidence to gather data can prove to be an effective method, it also has limitations which must be considered, such as a potential for bias and lack of detail. Having said this,

Bowens emphasises that these may simply be viewed as “flaws” which are outweighed by advantages (ibid. 2009b).

In summary, informal and formal sources of written and visual evidence were examined and supplied additional data. In addition to interviews and observation, the use of relevant textual sources of evidence supported the underlying methodology of this study.

Observation

Recording observational notes during fieldwork is a key method for collecting data in an ethnographic study (Hammersley and Atkinson, 2007). An example of real-life use of the qualitative research method is provided by Forman et al. and formed part of their infection prevention research (2008). The observation of central line insertion and hand hygiene in hospital provided insight into understanding factors which affect practice.

There are several forms of observation that may be undertaken. For example, the researcher may choose to carefully observe as a non-participant, whereby observations are recorded at set intervals. Alternatively, observations can be unstructured and the observer is a participant *“immersing [themselves] in a social situation...in order to understand what is going on there”* (Thomas, 2009, p. 186).

The informal observation of pupils and staff as they interact, use facilities or follow routines, is an appropriate method to explore the research questions and gather data. In fact, during the pilot study I observed the use of a classroom recycling bin by the class teacher within a few minutes of my arrival in the classroom as a volunteer. Specifically, a drink can was placed into the appropriate bin during a break when the pupils were not present. This provided an instance of the value of informal, first-hand observation and how it can offer insight into practices which may or may not be evident from written or reported accounts, interviews, written or visual sources. Indeed, the observation of staff and pupils in their natural setting of the classroom and wider school site, enables the recording (field notes) of actions taking place, rather than recording intended behaviour (Denscombe, 2007). That is, notes are collated which relate to the performance of procedures, the provision of facilities, who is using them and whether the action follows a prompt or is completed without overt prompting. All in all, it may be suggested that the value of observation cannot be overestimated and, according to Rugg and McGeorge *“a moment spent in observation is seldom wasted”* (1999, p. 17).

Interviews in education

Interviews may be used to learn more about settings and learning (classrooms, schools) and may involve teachers, students, or those who are commonly overlooked such as non-teaching staff. It is important to maintain the use of the respondent's original wording during transcription and analysis, to reduce the risk of losing meaning if amendments are made, e.g. to make it more understandable to the reader (Williams, 2000). Moreover, researchers can begin to understand the context of learning by interviewing, and thereby giving a voice to, the individuals who experience learning in classrooms (Tierney and Dilley, 2002). According to Eder and Fingerson (2002), interviewing can be effectively used with the whole range of children to *"allow them to give voice to their own interpretations and thoughts rather than rely solely on our adult interpretations of their lives"* (ibid. p. 2). However, the authors believe that researchers must be cautious and consider power dynamics before deciding to interview children. They believe pupils are aware of the implicit imbalance of power between adults and children, whereby children are viewed as having a lower status and less power than adults. Additionally, it is believed that pupils are aware of their teacher posing questions whereby there is only one (expected) answer, rather than a range of responses or ideas. By trying to understand these points and to seek ways to give power to the respondents an interviewer can gain more insightful data and give the children a voice by directly quoting their thoughts (see *Literature review: Pupil voice*). The authors proceed to offer a variety of ways to reduce the power of the adult researcher and in so doing, address the issue of power dynamics. It is suggested that group interviews may be used, whereby child or youth interviewees may be comfortable knowing they outnumber the adult and therefore more likely to offer accounts and perspectives. Alternatively, a combination of individual interviews (recommended for helping individuals feel sufficiently confident to offer personal insights) followed by group interviews (or vice versa depending on the subject under discussion) may encourage trust and openness. Either way, it is recommended that open questions are used in order to foster ideas and opinions rather than closed questions where the answer is already known.

The use of open-ended questions in a semi-structured interview enables participants to offer their thoughts and ideas rather than being constrained or feel under pressure to provide a "correct" response, as is often the case with closed questioning. Open questioning also helps to liberate the interviewer from initially forming fixed, pre-conceived ideas and instead, the researcher can endeavour to learn from the data. A semi-structured interview format enables the interviewer to check responses if necessary and consequently avoid assumptions being made. The use of semi-structured interviews as a method of data collection, was adopted by Howell (2013) to collate detailed information regarding climate change. The author conducted face-to-face interviews using open

questions and after examining key areas, employed a conversation-style approach with interviewees. This conversational method does indeed seem an appropriate tool for elicitation, however it is also time-consuming (each interview lasted for more than one hour) and was completed with a relatively small number of participants (16 adults) who were offered a fee for taking part and so perhaps may have been in a better position to provide ample interviews. Having said this, it would seem prudent to check responses and promote a friendly, conversational tone, whilst adhering to the structure of the interview and being aware of time limits.

Additionally, I feel that the use of face-to-face interviews is more appropriate and “friendly” than telephone interviews for example. This is due to the more personal nature of a face-to-face interview, whereby facial expressions such as an encouraging smile or nod, can be observed by both the interviewer and interviewee, enabling a potentially more relaxed and informal situation. Additionally, the presence of an interviewer in the familiar setting of the school environment may be construed as more reassuring and acceptable to the pupil or staff respondent, rather than a telephone interview for instance.

Furthermore, Rugg and McGeorge (1999) describe the use of interviews plus scenarios to elicit responses from participants. That is, offering examples of situations and posing questions related to the scenario. By providing the context of a familiar scenario, but not necessarily from a primary school setting, it could be argued that the respondent is therefore given an opportunity to offer their opinions in a slightly more detached manner; one in which they possibly may feel more at ease with providing candid responses.

The use of interviews enables participants to provide their own viewpoints and perspectives as they respond to open-ended questions and yields rich, complex data. In fact, as the sole collector of data, conducting face-to-face interviews in the school setting, I was presented with the opportunity to engage with the participants and the context. Or as Crotty concluded “*the process of qualitative research is largely inductive, with the inquirer generating meaning from the data collected in the field*” (Crotty, 1998, quoted in Creswell, 2009, p. 9).

In addition, as the present study sought to investigate pupil and staff practice of environmental responsibility in a primary school, it was necessary to consider a form of data collection appropriate for adults and Key Stage 2 children (age 9-10). Having experience of working with this age group, I felt that interviews, if worded appropriately, would garner valuable responses. Equally, the topic under discussion, essentially school life, would be familiar to the respondents and effectively, the respondents would be recalling examples from their experiences within the school setting.

Interviews have been employed as an elicitation tool by a number of researchers involved in qualitative research to investigate the perspectives of participants, with respect to the key themes of the research. Interviews are regularly used in conjunction with one or more additional methods of elicitation, some of which are innovative, such as Satchwell's use of mobile phone cameras (2012) or are the result of recognising the specific status of their teenage participants and the resultant importance of providing opportunities to articulate their opinions "*in their own words*" (Winter, 2008, p. 126). Then again, research to determine the contribution of role models, teachers and parents, on shaping the perspectives of young environmental leaders (Arnold, Cohen and Walker, 2009), relied solely on interviews to garner views. Interviews were also conducted in the school setting by Ryan (2004) to ascertain the attitudes of student teachers towards ESD. The author describes the value of interviews as an appropriate strategy for qualitative research, whereby responses can be unexpected, thought-provoking and ripe for interpretation. However, it is also noted that qualitative interviewing can potentially lead to the misrepresentation of responses, due to interviewer bias for instance. Being mindful of this and seeking clarification through the use of prompting, probes and checks can reduce the likelihood of bias (Denscombe, 2007).

Interview format

With respect to my research study, the aims and objectives of the research were used as the clear starting point, with the questions thus formed to encourage participants to articulate their understanding, as well as providing opportunities for them to offer supporting examples.

The interview (see Appendices 10 and 11) was divided into several categories in order to explore the following areas:

- Perceptions of environmental responsibility
- Range of environmentally responsible activities taking place in school, including forms of energy and resource consumption
- Approaches to learning about, experiencing or demonstrating environmentally responsible actions in school
- Barriers and drivers to the development of environmental awareness and responsibility, including practice of adults and pupils

The individual interviews were conducted face-to-face in school, during the school day. Each interview took approximately fifteen minutes and unless otherwise instructed, were digitally (audio) recorded. Only those who provided written permission were interviewed.

After thanking participants and encouraging them to answer freely or, conversely, to decline to answer, each pupil interview began with a set of questions designed to ease them into the interview process. The first section of both staff and pupil interviews involved the use of a scenario and open-ended questions. This was followed by a question to determine whether their actions could be considered routine or spur of the moment.

The second section of the interviews sought to gauge how energy and resources were used in school. Participants were also asked who may have observed or have been observed completing these actions, e.g. pupil, member of staff.

Section 3 focused on ways in which respondents may have experienced the performance of environmentally responsible actions in school, e.g. by observation, by instruction.

In Section 4 of the pupil interview, respondents were asked to consider the influence of adults and to what extent their influence encouraged them to behave in a similar manner. Additionally, pupil and staff respondents were asked if they were given the opportunity to provide an assessment of sustainability measures in their school. Staff respondents were also asked if there was a school sustainability policy, if sustainability measures were evaluated and if sustainability was taught as a standalone topic, e.g. a “Green Week” of focused events.

Finally, all respondents were given the opportunity in the concluding section, to elaborate on any responses or provide additional information.

The purpose of the interview was to generate data so that interpretations of pupil and staff perspectives could be made. However, there are limitations to using interviews and these must be taken into consideration when collecting and analysing data. For instance, Charmaz warns that participants provide their own point of view, which may or may not be strictly accurate. This may be because they provide an answer that they assume the interviewer expects or perhaps because it is “*taken for granted*” that the meaning is understood, e.g. meaning is implicit (Charmaz, 2006, p. 33). Consequently, Charmaz recommends the use of gentle, further questioning to ascertain understanding. Furthermore, care must be taken of course, to remain as neutral as possible in order to conduct a fair interview and avoid bias.

Questionnaires

Information can be collected by asking respondents to complete a written questionnaire containing a series of open or closed questions, which are identical to ensure consistency. The information can be

related to both facts or opinions, but the researcher must be aware that they are unable to probe or prompt due to the “distanced” administration of the questions (Denscombe, 2007). Although I had not intended to use a questionnaire to collect data, it became evident that I would not be given an opportunity to return to the school to pose further questions directly to respondents. That is, communication with the school contact had become sporadic and despite a range of methods being used to maintain regular contact (email, visits to the school and messages left with office staff), my requests and updates were often not answered, and any responses were somewhat evasive. It was unclear why this was the case. Consequently, instead of further face-to-face questioning, the provision of a questionnaire was accepted as an alternative to a return visit. However, although the pupil questionnaire was accepted, the staff questionnaire was not circulated and an alternative “online” version was not returned.

It was important that the pupil questionnaire was understandable and so questions were posed using age-appropriate language and referred to photographs of school facilities and resources familiar to the pupils. I was also mindful of potential power dynamics (see *Interviews in education*) and did not want respondents to feel under pressure to respond, simply because I was the adult asking the questions. As a result, despite the remote nature of the questioning process, I took care to include an introduction to the questionnaire which I hoped would help respondents feel at ease and able to be candid, rather than providing answers they felt I wanted or expected to read (Appendix 12). Care was taken to keep questions short and simple, with reminders regarding the source of the photographs and the purpose of the questioning, in addition to the gentle prompt that the questions did not have an expected response (Bell, 2007).

Data analysis

As the data was collected (see Table 1), I made an initial analysis, followed by a more thorough and systematic analysis. It was necessary to examine and search for meaning from the wide-ranging responses, documentary evidence, questionnaires and observations. That is, I interpreted the views and actions of the respondents and found emerging patterns, to gain understanding of their thoughts and actions as they interacted and performed environmentally responsible practices during a school day.

An interpretivist method of analysis was adopted because this enabled the data from the observations and interviews to be reviewed and compared more than once, in order to gain meaning. To begin with however, data was prepared for analysis through the process of transcribing field notes and digitally recorded responses. The transcribed format facilitated the process of familiarisation with the data.

Re-reading the transcripts and field notes meant that views and perspectives from one respondent could be compared with those of another. This resulted in patterns emerging or standalone elements or points of particular interest becoming apparent. Recurring themes and patterns were formed into categories, which can then be assigned a relevant code, i.e. an appropriate name, for the category.

Analysis of complex data from the interviews, together with information garnered from informal observations, and supported by evidence from the examination of pupil questionnaires, written and visual sources, provided emergent themes which could be compared and interpreted in order to address the research questions. The following sections provide more detail regarding the analysis of the data.

Interviews

Following completion of the interviews, the responses were transcribed by a professional transcriber. Although I had transcribed the interviews resulting from the pilot study, I found the process to be highly time-consuming and so determined that a professional would be able to produce transcriptions much more quickly and to a high standard of typed accuracy. Therefore, despite losing the opportunity to listen repeatedly to the tapes during the transcription process, I soon gained a set of typed transcripts, and this enabled me to analyse the content of interviews in detail (for examples of transcripts see Appendices 13 and 14).

The transcripts were given a simple code to provide anonymity and to support organisation and referencing of the data. Additionally, to maintain anonymity as far as possible, quotes from staff and pupils were assigned a number, for example Staff #3 rather than assigning an identifiable description such as Deputy Headteacher or Year 6 Teaching Assistant.

An important element of preparation is to read through all transcripts and to become increasingly familiar with their content. This enables recurring, discrete or divergent phrases and ideas to become more apparent. Notes were written on printed copies of the transcripts and a list of the emerging themes and ideas is drafted during this process. In addition to any notes made during or soon after the interviews (including field notes), these written notes acted as a prompt to aid interpretation and as a reminder of the context of the interview. It was also important to avoid preconceptions and bias as much as possible, particularly given my first-hand experience of gathering the data and previous experience in teaching.

Initial codes were formed from the data and categorise events, ideas and actions for instance. The process of initial coding rationalised the data and provided a more accessible basis for interpretation.

A useful table of examples of what can be coded is provided by Taylor and Gibbs (2010) and this proved to be a valuable summary of possible coding choices and decisions. That is, it can be quite an overwhelming experience when faced with a mass of data and a handy reminder can help to focus attention when decision-making (see Appendix 15).

Final coding categories (shown in Appendix 16) were applied to the imported transcripts using a Computer Assisted for Qualitative Data Analysis Software package (CAQDAS) software package. This program (NVivo) was used to locate and retrieve passages of text and facilitates the collation of quotes (evidence) to support ideas and inferences.

Observation, documentary evidence and pupil questionnaires

Informal observations took place during initial visits to the school and when acting as a volunteer in a Key Stage 1 classroom. The primary purpose of these visits was to build a rapport and become a “familiar face” and so the observations were limited to becoming acquainted with the setting and the interactions, provision of facilities and performance of routines during a school day. Almost as soon as these types of actions or points of interest were observed, I noted them in a field notebook to serve as a reminder. The field notebook contained a wide ruled margin for the addition of comments at a later stage.

Photographs were taken in and around the school and provided visual evidence of facilities, resources, notices, planning, notice boards and displays used to develop environmental awareness and practices. (To conform with ethical considerations, it should be noted that photographs did not contain people. See *Ethics*). Images were accompanied by a note written in a field notebook regarding location, intended purpose, initial interpretations of them and any comments made by staff or pupils regarding the materials.

Other forms of documentary data included letters sent home to parents/guardians, records of meetings, in addition to school policies, lesson planning and pupil workbooks. However, textual forms of evidence were limited as few items were offered by the school for scrutiny.

Questionnaires had been completed by pupil participants (6 of 7) and these were examined by reading and noting initial similarities and differences between the responses given in each section. The handwritten notes were transcribed for ease of handling the data. In a similar manner to the coding of the interview transcripts, the collected questionnaire, documentary and observational information was scrutinised for any recurring, as well as uncommon, themes. They were coded and as before (see *Interviews*), Nvivo was utilised to support the collation of evidence from the notes.

The methods of data collection and analysis were informed by the pilot study (see *Pilot study reflections*) which provided an opportunity to explore the advantages and disadvantages of procedures, in addition to developing research knowledge and skills. The following section outlines and reflects on this exploratory study.

Summary

This chapter aims to provide a clear set of iterative steps to address the questions related to the research aims and objectives. The chapter includes an introduction to the theoretical perspective used to inform the methodology which determined the choice of methods needed to collect relevant data. The chapter includes a reflective outline of the pilot study, conducted to inform and develop skills, methods and understanding in preparation for the main study.

The following chapter introduces the main findings from the research, and these are organised according to themes arising from analysis.

Chapter 4

Findings from interviews, observations, questionnaires and documentary evidence

Introduction

This chapter introduces the findings from the analysis of interviews, observations, questionnaire and documentary evidence. The chapter is divided into themes which link to the key research questions and emerged from coding during analysis: *Pupil and staff understanding of environmental responsibility in school; Approaches used to develop environmental responsibility; Outcomes of approaches used to develop environmental responsibility; Influence of the Eco-Schools ethos.*

This chapter incorporates the findings from the range of sources and contains extracts which highlight the respondents' views and beliefs as they articulate their understanding and experience of environmentally responsible practice in their school. There are also clear links to social practice theory as evidenced by sub-themes, such as *Reasoning, Awareness, Competency, Differentiation, Cultural meaning.*

The themes and their sub-themes are presented as outlined in the table below (*Table 2*). The findings have been grouped and organised according to common features, but naturally they share concepts and elements of practice which at times span the sub-themes.

Theme 1: Pupil and staff understanding of environmental responsibility in school

This theme represents staff and pupil perceptions of waste and how they believe consumption can be reduced. Respondents offered their ideas regarding facilities, routines and procedures associated with the practice of developing awareness of environmentally responsible behaviour. The findings demonstrate the reasoning, beliefs and knowledge behind the practice, as the respondents describe the performance of routines and interactions with their peers or colleagues. The findings show that the emotions evoked by the use of recycling facilities, re-use of paper and conserving energy, may lead respondents to repeat these routines and procedures, thereby maintaining the continuation of the practices. Additionally, it seems that the cultural context and nature of the setting may have influenced the thinking behind the actions. Despite these common elements, the findings also indicate that there are differing beliefs and competencies related to sustainable practices, and these may serve to support or hinder the practices associated with sustainable living.

Table 2. Findings: Themes and Sub-themes

Theme 1: Pupil and staff understanding of environmental responsibility in school	Theme 2: Approaches used to develop environmental responsibility	Theme 3: Outcomes of approaches used to develop environmental responsibility	Theme 4: Influence of the Eco-Schools ethos
Sub-theme 1A: Emotional, cultural and historical meaning	Sub-theme 2A: Teacher-directed approach to develop knowledge and understanding of environmental responsibility: Curriculum topics	Sub-theme 3A: Competency and cultural meaning (i) Competency (ii) Cultural meaning: Catholic character of the school	Sub-theme 4A: Participation (i) Routine actions (ii) Limited scope for active participation (iii) Further opportunities for participation
Sub-theme 1B: Reasoning	Sub-theme 2B: Incentives and rewards: Sustainable transport, Eco-Schools status and Catholic school initiative	Sub-theme 3B: Influence of the setting and practicalities	Sub-theme 4B: Monetary benefits (i) Reasoning (ii) Competing considerations
Sub-theme 1C: Beliefs	Sub-theme 2C: Modelling and observation: Staff: Pupil Pupil: Pupil Pupil: Staff	Sub-theme 3C: Differentiation (i) Staff and pupil recognition of differing practice (ii) Conflicting beliefs, contradictory practices (iii) Changes to practice	Sub-theme 4C: Changes to practice (i) Impact of energy-saving activities (ii) Impact of technological changes
Sub-theme 1D: Agency	Sub-theme 2D: Routines and habits (i) Conservation of energy and reduction of waste (ii) Recycling paper and batteries, conserving energy used by technology		Sub-theme 4D: Other influences (i) Ease of practice and irritation (ii) Cultural meaning of a Catholic directive (iii) Forest School and curriculum expectations
Sub-theme 1E: Awareness			

Practice theory recognises that there are three elements that work together and are needed to perform a practice. These are: meaning (reasoning or thinking), competency (skills or know-how) and material (resources or infrastructure). Practice theory also recognises there are different ways of knowing, thinking and reasoning, and that these influence practices and may also be conflicting in nature. Delaney and Fam specify that emotional meaning refers to the wish or desire to perform a practice, cultural meaning refers to the cultural context of a practice, whilst the historical meaning refers to the exposure to or observation of a practice over time (2015). This range of meanings is outlined in Sub-theme 1A below.

The more general reasoning behind pupil and staff understanding of environmental responsibility in school is outlined in sub-theme 1B, whilst sub-theme 1C presents the beliefs of pupils and staff, which give insight into their perception of environmental responsibility. Sub-section 1D introduces the concept of agency and the recognition of roles, including the power to make changes. Finally, sub-theme 1D focuses on the awareness, knowledge or skill of pupils and staff to perform practices associated with environmental responsibility.

Sub-theme 1A: Emotional, cultural and historical meaning

The findings show that the respondents generally share similar perceptions regarding environmental responsibility in the school, but there are also some differing insights, and these may lead to a range of meanings associated with environmental responsibility. Pupil respondents attributed “being wasteful” with negative emotional meaning, therefore limiting the likelihood of repeating such types of practice. Additionally, there was an awareness of alternative practices which involved routine recycling. For example, there was evidence that pupils linked the practice of recycling with a reduction in consumption of resources made from plastic.

Further insight into perceptions of waste was provided by Pupil #6 when explaining their reasoning (emotional meaning) behind the practice of paper recycling:

“Because paper is...chopped off trees and then we lose trees and then we use oxygen, er, so I don't want to lose oxygen so I put it, I carefully put in the recycling bin”. The respondent believed that their action was in some way benefiting the environment and their health. The pupil recognised that the action of recycling was linked to a beneficial outcome and was able to associate the final product, paper, with key functions and properties of trees. A different pupil gauged that electricity was something that could be depleted and suggested they did not want it to “run out”. The pupil had tried to understand the reasons behind the actions of others, by comparing the finite nature of electricity to the limited charge of batteries. It was likely they had attached emotional meaning to electricity, and this influenced their considered use of it.

Whereas Staff #1 provided a range of reasons to explain the use of a dishwasher in the staffroom. These included no plug for the kitchen sink to the quantity of items to be washed. However, it seemed that a need for hygienic cleaning due to the sink lacking hot water, together with a desire for water efficiency (“loaded full”), were the overriding reasons for using a dishwasher. This latter reasoning seemed to be confirmed by a further comment “you just always had it drummed in, you don't waste water”. Consequently, the respondent felt the action was embedded due to these repeated reminders

to efficiently use water. Furthermore, it seemed that the respondent had been taught or had observed efficient use of water and so the resulting historical meaning of water had led to a significant influence on their practice.

The religious background of the school and the associated beliefs of staff and pupils, provided the cultural context for sustainable practices according to Staff #2:

“it's this idea of our Catholic identity which leads into caring for creation, erm, which will have, erm, actual tangible actions which will result in the switching off of the light because they know they're caring for the common home, so there will be purpose behind it”.

Staff #2 asserted that there was a need to participate in environmentally responsible actions as this was a characteristic of being a Catholic. As a Catholic school, it was therefore the joint responsibility of pupils and staff to demonstrate this duty and to be aware of their religious obligation. In addition, this insight revealed that the cultural meaning, which acted as the context for the practice, was a significant influence on the willingness of the respondent to perform sustainable routines and procedures.

The cultural context of the school shaped the thinking of Staff #1. They explained that the school had the opportunity to become involved in a Catholic Agency for Overseas Development (CAFOD) scheme that focused on the human consequences of climate change and reasoned that this was of value partly because:

“the difference I suppose with, erm, Live Simply, than just doing the eco thing is it considers the human direction of, the human impact as well of, of environmental, erm, issues”.

The respondent indicated a desire or intention to increase the examination of a breadth of issues from those primarily related to energy conservation and avoidance of waste, to include a more overt focus on human needs, perhaps a greater emphasis on the links to sustainable development (United Nations, 2015).

Insight into the strength of feeling or emotional meaning of the environment was provided by Questionnaire Pupil B in response to a point raised in the pupil questionnaire. They were aware of the range of differing meanings attributed to the environment and felt *“Some (not all) people still disrespect the environment. I wouldn't say much has changed”*. Clearly the pupil understood that the views of others sometimes differed from their own, but there was also an indication that they believed

existing reasoning about the environment needed to change in order to influence and ensure effective sustainable practice.

Sub-theme 1B: Reasoning

It was evident that the Eco-Code was recognised by pupils as an overt and prominent display of reasoning behind the practice of sustainable routines and procedures. Generally, the Code generated a positive response and there was a belief that it acted as a guide to the development of environmental responsibility, “This is very useful because it gives us tips to save the environment. School has it so we can protect our world” (Questionnaire Pupil A). The respondent perceived this as a joint responsibility and the use of the word “tips” suggested the Code was viewed as a set of guidelines rather than school rules. In addition, a respondent considered the Code to be the school’s public commitment to practising sustainable behaviour “*This means people can see we are trying to be eco-friendly*” (Questionnaire Pupil D). This public element of the practice may have encouraged a willingness to engage with and repeat the procedures.

The findings also provided insight into the reasoning behind the routine reuse and recycling of paper by pupils and staff. Indeed, Staff #5 went further and highlighted the link between the practice of routinely reusing paper and the practice of teaching staff supporting their colleagues by sharing resources. That is, Staff #5 suggested that excess printed paper almost inevitably was guided towards the pupils in their class “*It all comes into [identified class], if in doubt everything comes into us, we reuse*”. The respondent not only viewed the paper as suitable for reuse (thereby exhibiting know-how or competency), but they also recognised that their colleagues considered the pupils (in the respondent’s class) as the ideal recipients of the paper. The reasoning for this may have been the propensity of the young pupils to informally practise their developing writing skills, coupled with the other staff members’ implicit understanding of this. More specifically in respect to practice, the staff who shared the paper with the respondent had attributed value to the resource, thereby influencing their willingness to perform the routine of reuse. It was an easily performed action and it seems clear that the setting influenced the continuation of the routine. In addition, the routine supported the practice of reducing consumption levels, whilst assisting a colleague and their pupils.

Although not making a direct link to finite resources, Pupil #6 attempted to explain the process of making paper and showed understanding of trees relationship with the creation of oxygen. Their reasoning for recycling paper therefore demonstrated the pupil’s recognition of the practical aspect of recycling paper and its link to sustaining the health of individuals. It was evident that the pupil had an understanding of the relationship between their actions and the impact on the environment.

Indeed, the respondent's emotional response to trees (the meaning they assigned to trees) was likely to inform the practice of recycling paper in school. Similarly, several pupils were aware of the option of closing the window to save heat, e.g. something they regarded as valuable, being lost. Pupil #3 went on to describe their reasoning *"so that's kind of to do with heating being wasted because it's on for no reason when the window's open"*. The pupil demonstrated understanding of the contradiction between making a choice to warm a room but leaving a window open which enabled the heat to escape. They equated this with misuse of or a waste of heat (energy) because they recognised that although the heating system produced heat, this was lost through the open window.

Time efficiency was the main reasoning behind the reuse of lettering by Staff #6. This resource (made for use in classroom displays), was thought to be worth reusing because, as Staff #6 explained *"Yeah, [we] reuse laminate a lot ... like we've all got stuff we've used for years just because it's easier"*. It seemed that the respondent considered reuse to be preferable to the disposal of the resource and so the action of creating the lettering at the outset was considered worth the labour. They were primarily motivated to reuse by practical reasoning, i.e. the action saved the time and effort required to create a new set of letters. However, this type of reasoning indicated a willingness to laminate the paper lettering, thereby producing a non-recyclable product. This perception of the resource (and the meaning attached to it) could potentially act as a barrier to environmental action (Blake, 1999).

Sub-theme 1C: Beliefs

The findings also provided insight into the beliefs of staff and pupils. The respondents did not always offer an explanation for their ideas and views, but their range of beliefs provided an indication of their perceptions. In turn, these may have influenced their willingness to engage in a practice.

Pupil #5 was confident that the routine collection of used paper would take place following activities in the classroom:

"or when I've done it, we've probably done the questions and then someone comes round with the bin and then it, and then if it's like been cut out of and we can't use it again, it will be, erm, it will be put in, in the bin, which will be going to the recycle bin".

The pupil demonstrated their knowledge of the steps (competency) and facilities (materials) involved in this procedure, in addition to believing that during the course of the school day, the routine would be repeated and would involve the collaborative action of their peers and staff. However, the same confidence was not shown by Pupil #3 who was frank about the perceived amount of waste *"Erm, well resources being wasted is kind of a common one, because like normally everybody would put it in the*

normal bin, nothing's recycled". This indicated that the respondent believed waste equated to items being thrown away rather than being recycled. Additionally, the example indicated a knowledge of actions designed to avoid waste and the facilities available to enable these actions. Use of the word "everybody" suggested the inclusion of pupils and staff. Indeed, it seemed the respondent perceived these individuals as being unwilling to perform the sustainable actions which formed part of the practices of environmental responsibility. Further insight into perceptions regarding used paper was provided by Staff #5 when they stated:

"obviously we would try and put anything, like with the children, if they've got any rubbish and stuff like paper rubbish, we've got particular bins where they would put them into".

It seemed that the respondent held negative beliefs about its value despite alluding to the use of bins or facilities involved in the practice of recycling the paper.

A further potential constraint to the continuation of or engagement with sustainable practice was described by Staff #4. They believed that the financial cost of more energy-efficient lighting was restrictive:

"it will pay for itself in like twenty, twenty five years they reckon but it's like, but schools don't have that much money these days, as they used to have, erm, and it's every, everything to do with cost, so we just do what we can for now".

The respondent believed the financial outlay was beyond the budget of many schools. They felt that schools were constrained by their budgets and believed that it was necessary to accept and meet the challenges of sustainability in the interim. In fact, the respondent was aware that institutional constraints such as budgets served to limit intended sustainable actions and practice (Blake, 1999).

Despite wishing to conserve energy, a pupil believed their ability to perform the action of switching off lighting was constrained not by budgets, but by the actions of others. That is, Pupil #3 explained:

"Maybe like when someone's in the class and I want to turn off the light but they say like no, because, because they said they're like scared of the dark when it isn't even really dark".

Although the respondent alluded to the room being relatively dark without the lighting, their overriding concern seemed to be to switch off the light, irrespective of the low lighting level or the presence of another pupil still in the room. Their belief in the value of conserving energy conflicted with the needs of another pupil and this was viewed as a hindrance to their efforts to repeat the action of turning off a light. The influence of factors believed to limit the performance of sustainable actions,

was outlined by Staff #1. The respondent suggested the reason behind the school's partial, rather than complete, move towards the replacement of existing lighting with sensor-controlled lighting. The respondent offered practical reasoning and believed that such technology was not appropriate for every area in the school (e.g. lighting on the stairs was not sensor-controlled) and so issues of safety surmounted sustainability measures. However, reasoning for conserving energy by switching off unused lighting generally stemmed from a desire or intention to conserve energy. Pupil #2 believed they were accustomed to performing an action that made a difference to the amount of energy consumed. This belief was echoed by Staff #4 who stated that the reason for their action was to conserve energy. The respondents had the know-how (competency) to routinely perform a simple action with the intention of conserving energy. It was clear that a pupil also was capable of performing the action and furthermore, believed their peers would do the same. Pupil #5 stated:

"Well, we do...everyone like helps out...and... if Miss asks one of the, erm, people in the class to turn off the whiteboard we'll do it and then, erm, if, if like the class are leaving like the classroom, erm, the person at the back of the line will turn the light off if no-one else is in the classroom".

The pupil certainly seemed to be willing to assist the class teacher ("Miss") in the conservation of energy, and in addition they viewed this assistance as a responsibility shared with their peers. It seemed that the respondent believed that pupils were aware of the responsibility given that it was likely that the last person in the line would change each time the queue was formed. It was likely that the norms within the setting played a part in providing meaning to the action, e.g. pupils following instructions from staff. But nevertheless, the respondent believed that their peers possessed similar levels of competency, such as knowledge and awareness, as themselves and would readily perform the action. Similar assumptions regarding actions were made by Staff #1 who held the belief that the provision of water-efficient infrastructure (materials) would naturally lead to a knowledge of water conservation. It did not naturally follow however, that possessing the skill to use the new infrastructure would lead to more efficient use of water (Kadibadiba, Roberts and Duncan, 2018). Instead, a combination of the elements of meaning, competency and materials would be necessary to form the routines which make up the practice.

Insight into thoughts regarding heat loss and emissions was offered by Pupil #3. They had considered why the heating may be turned off rather than opening a window to cool a warm room and stated, *"Erm, it's so that we don't waste any like, I mean don't cause more pollution"*. The pupil believed there was a relationship between wasting heat and the creation of emissions. Moreover, it was apparent that the respondent had an understanding of actions and their environmental impact. The issue of

heat loss and energy wastage was also considered by Staff #5 who believed that heat energy was wasted due to the design of their teaching area. Although the age and learning needs of the children necessitated an outdoor play area, separate from the main school playground, the design of the area was potentially challenging:

“Heating tends to be whatever the, the heating is but because we're in X we have the door open so that is not a good use of resources at all but it's just the only way that we can work because we have to have access to the outdoor area, erm, but we, if it's really hot and things like that and the rest of the school's on we will turn, like adjust the heating... to make sure it's cool”.

They endeavoured to mitigate the loss of heat by adjusting the thermostat to lower the temperature, yet they were almost resigned to the fact that the building design was leading to energy inefficiency and again, a feeling of powerlessness was evident (Mead et al., 2012). This was perhaps highlighted by the emphasis placed on the phrase *“just the only way”* which suggested that a viable solution was unlikely given the needs of the children and the limitations of the current design. This finding provided an example of the decisions facing staff every day, including those that necessitated weighing up the practices of sustainable behaviour against learning needs and building design. Whereas another member of staff believed that the heating system rather than the building design, was problematic. Staff #1 explained:

“Say it's been cold in a morning but had a bright day in the afternoon... the south facing side of the building can get quite warm, erm, because it's getting the sunshine. So on like a day like yesterday, when it's actually very cold, one side of the building will be cold and the other can be quite warm because it's not a, it's not a dual system”.

The respondent considered the issue lay with technology rather than the design of the building. It would be unlikely that the building and its constituent classrooms could be drastically altered to alleviate the heating issues arising from the orientation of the rooms within the building and the location of the building itself, so it seemed understandable that the respondent would view the heating system as problematic. However, the example illustrated the complexities of reconciling issues with building design, access to appropriate technology and the everyday practice of maintaining a comfortable working temperature, whilst practising a sustainable approach to energy use.

Sub-theme 1D: Agency

Practices require individuals to routinely perform actions and procedures to ensure that the practice can continue. As a result, the practice relies on agents or practitioners to sustain it (Røpke, 2009). Pupil #3 recognised the role an individual can play in the practice of heat energy conservation. This information suggested the pupil had some understanding of the links between energy conservation and actions. They felt that efforts to heat a room would be countered by the presence of an open window and recognised that a practitioner could make a difference by closing the window. The repetition of an action by individuals and its link to energy conservation, was also recognised by Pupil #5. The respondent described the actions of individuals who were willing to competently play their part in the practice of energy conservation. Whilst Pupil #6 believed they were able to make a difference to health by ensuring they recycled paper, as they understood this action would reduce the logging of trees and impact on the generation of oxygen (also see *Reasoning*). Meanwhile, Staff #2 recognised the numerous stages and people involved in the procedure for recycling paper. In addition to demonstrating their knowledge, they included reference to the role of cleaning staff:

“Er, we’ve got boxes by the side of every printer, erm, and I think in every classroom as well, erm, where it goes to be recycled and they get collected, erm, each day by the cleaners, erm, and put into big bags and that goes off for recycling”.

The respondent viewed the procedure as involving at least two elements: production of the wastepaper and collection of the paper in preparation for recycling. By acknowledging that the cleaning staff played a part in moving the procedure from one stage to the next, the respondent demonstrated an understanding of the role of individuals as agents who sustain a practice. Although in a primary school setting some agents will have more power to enact changes than others (Sahakian and Wilhite, 2014), the role of the individual in a practice is clearly a key element and the findings demonstrate that some respondents were able to recognise this and to communicate their thinking.

However, there was also evidence of a feeling of powerlessness due to the need to rely on changes being made by representatives. That is, in the questionnaire a pupil doubted the effectiveness of the Eco-Committee to act on their ideas or perhaps to be representative of their beliefs *“Again there is no point [listing the Eco-Committee members on the noticeboard] because they don’t really do anything”* (Questionnaire Pupil B).

Clearly a negative emotional meaning had been attributed to the Committee and their competency to lead actions. It was therefore doubtful that the pupil believed the Committee members were likely

agents of change. This lack of confidence and uncertainty regarding the Committee's ability to effectively represent pupil perspectives is reflected in Hart's ladder of Participation (1992) and largely concurs with a level of non-participation.

Sub-theme 1E: Awareness

The findings suggested that respondents were aware of aspects of environmentally responsible practices in the school, including the use of facilities and the performance of routines, but did not necessarily elaborate on their understanding. There was evidence of competency regarding the separation of items in preparation for recycling. Pupil #2 provided insight into their awareness of the separation stage when they stated *"Might look through them and see if there's like anything that can be recycled"*. The respondent anticipated that bins contained items that had been discarded but could be retrieved and recycled. Their belief in checking for recyclables was an indication of their values and their skill of recognising and processing recyclables. Further examples of an awareness of this stage of recycling practice were provided by staff and pupils. Regarding composting, Pupil #4 had knowledge of composting food waste, despite this not taking place in school, whilst the issue of limited access to appropriate facilities was raised by Staff #5. The respondent was aware of the facilities (materials) available to some settings *"well, some places you can recycle the peel and the core can't you?"* which implied that without access to these facilities, the action of composting food waste was difficult.

Regarding technology and the conservation of energy, the Staff #1 response of *"it looks like he's left his computer on overnight...obviously there's energy saving issues with that"* suggested that the respondent was aware of electricity being wasted, whilst also assuming, perhaps due to the use of the word *"obviously"* that this would be clearly evident. It also suggested that the respondent recognised or understood that to conserve energy the computer could have been switched off or placed into an energy-saving mode, rather than using electricity throughout the night. Regarding pupil awareness of energy use, the findings demonstrate pupil understanding of energy conservation in respect to technology. That is, pupils were aware of occasions when it was logical for computers to be left switched on, whilst maintaining a pragmatic view of energy-efficient procedures *"we shut them down after every lesson and, but since there's another class coming in after us, what we normally do is we just put them on standby"*. The pupil recognised that different measures were required at different times and it was necessary to choose the mode that seemed best suited to the situation. The application of the standby mode in preparation for the arrival of another class, may not necessarily have equated with an intentional effort made to save energy (Nordlund and Garvill, 2002), but it seemed this setting was viewed as something of a compromise between shutting down the computers and leaving them switched on. Decisions were ultimately determined by timetabling, in which case,

this is an example of a time-efficient action influencing the practice of energy conservation.

Further reference was made to the link between technology and energy-use when Pupil #3 somewhat hesitantly reasoned why their class teacher left their laptop switched on throughout the day. The pupil reasoned this was due to the need to *“Um, to like look up things, like”*. Although the pupil had originally cited the teacher’s open laptop as an example of electricity being wasted, the pupil was able to offer a sound suggestion for this behaviour. The pupil’s responses, although not in reference to their own actions, was a demonstration of their perspective regarding everyday actions within the classroom. Specifically, the laptop in question was designated for the teacher’s use and linked to the operation of the interactive whiteboard IWB. Its use of electricity would have been noticeable to many individuals in the class. As this respondent had earlier stated that the reason why they switched off the IWB at the end of the day was *“just to save electricity”*, this indicated that the pupil perceived energy as something worth conserving, and so it seemed likely they would be aware of energy-use in the school. Also, the choices and decisions of others were sometimes perceived as markedly different to expected behaviours, as evidenced by the comment from Pupil #3 who was seemingly critical of their peers and their (perceived) incorrect separation of paper *“Erm, like normally it's just, erm, erm, children just put it in the bin but I normally put it in the recycling”*. Practitioners may demonstrate a range of competencies and hold a range of beliefs, while they engage in a practice. However, Pupil #3 was aware of their peers demonstrating skills which were different from their own. This was thought to be of significance, especially in light of their own apparent readiness to adhere to procedures.

Theme 2: Approaches used to develop environmental responsibility in school

This section considers which approaches were used by staff and pupils to provide opportunities and support for the development of environmentally responsible behaviour. Regarding pedagogical techniques to developing knowledge and understanding, these can be teacher-centred or learner-centred and include direct teaching, active learning or collaborative learning (Summers and Kruger, 1998). Furthermore, the establishment of routines to manage classroom organisation, the introduction of incentive or rewards-based schemes and modelling or observation of behaviour may also be utilised. These approaches may complement an overarching whole-school policy or ethos in order to engage all members of the school community in a shared set of values.

The findings from Theme 2: *Approaches used to develop environmental responsibility* demonstrate that there were several methods being used to develop practices of environmental responsibility and understanding. For some, the emotional meaning of attaining a silver award level influenced their willingness to engage in the routines and procedures of sustainable practice. For others, engaging

with a Catholic community initiative enabled participants to derive internal rewards (Warde, 2005) and generated a positive emotional response. This was likely to be due to the cultural context of the scheme. Regarding the use of modelling to demonstrate recycling or efforts to reduce energy consumption (Higgs and McMillan, 2006), it was believed that this approach facilitated the observation of sustainable skills (competency) and the use of appropriate facilities and technology (materials). This would encourage others within the setting to repeat the routines and procedures. Moreover, the interaction between the practices of learners and teachers, helped to shape the overarching practice (Røpke, 2009). There was a willingness to develop the skills necessary to perform environmentally responsible routines and procedures. That is, pupils and staff related examples of their involvement in performing routines such as battery recycling, recycling paper and reusing paper and switching of a light. For some this was viewed as an obligation or duty, and it was a demonstration of their values. In addition, there was a demonstration of pride and ownership related to the use and provision of recycling facilities. This emotional meaning influenced the repetition or continuation of environmentally responsible practices and their routine recycling actions.

Unlike the organisation of the findings from the preceding and following Themes (organised according to key concepts and elements of practice), this section will categorise the findings according to the approaches used to develop environmental awareness in the school. This clear presentation of the range of approaches will facilitate an exploration of the outcomes of these approaches and the influence of the Eco-Schools ethos.

Sub-theme 2A: Teacher-directed approach to developing knowledge and understanding of environmentally responsible behaviour

Curriculum topics

Environmental topics which focused on energy conservation and the consumption of resources were included in the school's curriculum. A staff respondent referred to the use of water in school, both in the context of watering the trees in the school grounds (Staff #1) and in relation to maintaining the health of plants grown in the school garden. The care and cultivation of plants in the school garden suggested a link to the Eco-School topics of either "Biodiversity" or "School grounds" or a National Curriculum Science topic link to the study of plants. Whereas Staff #5 made reference to Religious Education (R.E.) and the topic of water conservation:

“We do talk about, in our R.E. [Religious Education lesson] about looking after water and not wasting water, that comes in, for like, we talk about sharing the planet and how we share it with people and animals and stuff like that”.

The respondent believed the subject area of R.E. offered an opportunity to discuss the sustainable use of water. It seemed clear that Staff #5 was familiar with this topic and they appeared to suggest there was an implicit link between R.E. and water conservation. Use of the words *“stuff like that”* indicated similar, related categories, but the staff member did not elaborate.

A clear reference was made to a subject taught during an earlier stage in school. That is, Pupil #3 remarked *“In year four we learnt about, erm, the greenhouse effect”*. The pupil had recalled learning about the issue of greenhouse gases from their previous school year and was able to relate it to perceived energy wastage in school.

Sub-theme 2B: Incentives and rewards

Sustainable transport, Eco-Schools status and Catholic school initiative

Schemes which aimed to develop a more sustainable manner of transport, whilst promoting health benefits, had been incorporated into school life. Reference was made to this type of sustainable travel campaign by Staff #1 who explained:

“The children are being encouraged now to walk to school and there's a scheme in place for that and that they'll get badges every month depending on how much they've walked to school so that's to encourage kind of green, you know, travel, erm, or cycling I think is okay with that, or scooting”.

The respondent believed the scheme would boost travel to school by means other than car. That is, they viewed the use of a rewards system as an approach that would lead to the use of more sustainable travel options (“green travel”). They also believed that the incentives (badges) served to reward pupil participants for this behaviour. It seemed apparent that the scheme was aimed solely at the pupils and the thinking behind it rested largely on the tangible rewards given to those children who were able to travel to school by foot rather than by car.

There was reference made to the school’s Eco-School status by a pupil respondent and in particular to the rewards-based nature of the Eco-School programme. Pupil #4 stated:

“Because we, our school's got like an eco-award, silver, and everyone's trying to push to get the, erm, gold so we're trying to stop using it as much more and only using it [energy/resources] when it's needed”.

The pupil was aware of the reward system associated with the Eco-Schools programme and was keen to attain the award. This emotional meaning influenced their willingness to reduce energy consumption. Use of the word “everyone” suggested a whole-school effort to gain the next award, yet the respondent was the only pupil to make reference to the programme and its associated tiered system of awards. This indicated that the achievement of an award was of greater relevance to some respondents than to others.

The participating school was a Catholic school and during the period of data collection was undergoing changes to policies and areas of focus. One member of staff made clear reference to a Catholic-based initiative, that although not strictly offering demonstrable rewards, it acted as an incentive to develop sustainable behaviours. Staff #1 explained:

“So yeah, so as a catholic school there is a scheme that the school can do in addition to the Eco-Schools things which is kind of for all schools, erm, and that's Live Simply Award which is run through CAFOD [Catholic Agency for Overseas Development] and the difference I suppose with, erm, Live Simply, than just doing the eco thing is it considers the human direction of, the human impact as well of, of environmental, erm, issues, so justice and, you know, and who, inequalities and things like that, so, and who's more affected by environmental changes than other groups of people”.

The respondent differentiated between the schemes by categorising the Eco-Schools programme as primarily concerned about the impact of unsustainable practices on the environment, whereas the Live Simply Award encompassed environmental issues and how these impacted on humans. It seemed that the respondent perceived the CAFOD scheme as a separate initiative focusing on care for the environment from a Catholic perspective. This suggested support for an initiative that encompassed elements of sustainable development, whilst enabling participants to feel rewarded by supporting a Catholic community initiative, i.e. the scheme encompassed emotional and cultural meaning.

Sub-theme 2C: Modelling and observation

Staff: Pupil, Pupil: Pupil, Pupil: Staff

Staff #6 favoured the use of modelling to foster the development of environmentally responsible

behaviour *“In school, well the children [may observe a light being switched off], I think it's good to model it in front of the children and they see you doing it”*. The respondent believed it was worthwhile for pupils to observe (sustainable) behaviours taking place and the teacher was prepared to model preferred behaviours. Another staff member made reference to modelling “good practice”. This involved being observed switching off lights and so it seemed evident that the respondent viewed this action as worthy of being imitated (Bandura, 1971). Regarding learning from modelling, Pupil #6 made reference to an incident which had seemingly taken place several years earlier in school:

“Er, when I was younger, er, I put some paper in the bin but then I saw some, er, and I think it was the year two teacher put it in the recycling bin so then I decided, so I got the piece of paper and put it in the recycling bin”.

The pupil described an event that had taken place more than two years earlier. They viewed it as a meaningful event and one which had influenced or encouraged them to modify their behaviour, due to the actions of their teacher. The adult acted as a role model and the child observed, imitated and notably, recalled this action some time later.

In fact, several pupils suggested that adults possessed the knowledge and experience to appropriately guide the children; although it was unclear whether Pupil #1 was suggesting that this was true of all adults or just those in school. However, Pupil #5 went further and outlined the impact of modelled behaviour:

“Um, yeah, yeah, because if we've seen the teachers do it we know like that it's a good thing to do, so we try and if we know that, like if we, if we forgot about it and then a teacher for example does it and it reminds us we will try and do that in future”.

Pupil #5 considered the actions of staff as exemplary and to be emulated. They felt they could rely on teachers to set a good example and provide them with appropriate direction. Use of the words “a teacher for example” possibly indicated that a range of staff acted as demonstrators of good practice, which served to encourage Pupil #5 and their peers (“we”) to copy the actions. Pupil #4 emphatically agreed that adults (acting as role models) influenced their actions or attitudes.

Generally, adults were cited as modelling behaviour. Yet there was an instance of a Staff member suggesting pupils acted as good role models:

“there is obviously the Eco-Council, erm, their, their job is to sort of remind people about these things and to lead by example, so they are pretty good at, erm, switching lights off and taps and things like that” (Staff #2).

The respondent valued the conduct and actions of the members of the Eco-Committee and felt they were capable of modelling sustainable behaviour. It perhaps also suggested that this small group of pupils demonstrated good practice to staff, in addition to their peers. However, this is contrary to the view expressed by Questionnaire Pupil B (see Sub-theme 1D).

Pupil respondents provided several examples of observing their peers performing environmentally responsible actions. For instance, in response to questioning regarding who potentially observed them switching off a light, Pupil #3 replied *“Erm, probably my friends because normally they do it sometimes”*. Considering this action took place in the ICT suite as the respondent and friends carried out duties, this statement also suggested the involvement of a group of pupils entrusted by staff to perform actions without the need for them to be present. Similarly, Pupil #5 stated *“A few more, a few classmates, that's it”* which suggested no staff, only their peers, observed the action of switching off lights. When asked who may have observed them switching off a light, Pupil #7 gave the names of two children. It transpired these two pupils had been tasked with the role of switching off lights and so it seemed that Pupil #7 was suggesting that the pupils would observe others as they performed *“their”* duties.

A staff respondent referred to instances of *“Eco-Committee”* pupils (responsible for reviewing, setting targets and communicating results of actions to the rest of the school) being observed by fellow pupils. Staff #6 stated:

“Yeah, I think the children, especially with it being quite child-led with lights and electricity and things like that, with the Eco Committee, when other children see it I think they do it and act on it, which is really good”.

Staff #6 surmised that pupils were likely to be influenced by the actions of their peers and would be inclined to mirror their behaviour. Moreover, the additional comment *“Yeah, which works a lot better than them sometimes just seeing you, so yeah, that's good”* (Staff #6) which indicated that Staff #6 trusted peer observation as a beneficial approach to take and recognised that pupils could be more effectively motivated by observing the actions of their peers, rather than the actions of their teacher.

Reference was also made to observation of staff and pupils performing similar actions. Staff #1 indicated which pupils may either observe them or the designated light monitors switching off lights,

“Erm, it depends [who may have observed the respondent switch off a light], it could be any children that are straggling because usually it's after the class has left the room”.

The respondent assumed that there was a chance that their action had been observed by the pupils, but believed it was more likely that the pupils would observe their peers as they performed their designated task. This was indicated by the additional comment *“I mean we've now got light monitors in each class so they, they're observing that all the time, erm”* (Staff #1). It seemed the respondent supposed that the action was taking place with regularity and was being observed by pupils. Regarding the actions of pupils acting as light monitors, Staff #2 proposed that a range of people, not only pupils, but also staff, may observe these pupils performing their task (Staff #2). Similar instances of both staff and pupils observing actions were offered by Staff #3 and Staff #5.

Sub-theme 2D: Routines and habits

(i) Conservation of energy and reduction of waste

Several pupil and staff respondents made reference to the action of switching off a light to conserve energy. For example, Pupil #5 stated they observed someone regularly performing the action, which suggested a routine action and added that no explanation or reasoning was offered *“Probably because like we've all been informed about this so we know why”*. This indicated that the respondent understood or accepted the reasoning behind the action. Pupil #4 determined that their action of turning off a light was a habit, but then stated *“I think it's just a habit because I'm one of the last ones out every night so I have to turn them off”* which seemed to suggest the respondent viewed the action as an obligation or a duty. The inclusion of the word *“just”* indicated the respondent regarded it as an action to which they gave little consideration (Steg and Vlek, 2009). Additionally, the action was perhaps misinterpreted as a habit rather than a routine.

When Staff #4 was asked to consider the action of switching off a light, their response of, *“That should be a habit that”* was offered without hesitation and suggested that the respondent believed the action was important and expected it to take place (Warde, 2005). Their additional comment seemed to emphasise this expectation *“the teachers, as they come in, they put their own classroom lights on and turn them off when they leave or should do”* and also highlighted that teaching staff had been encouraged to conserve energy. Furthermore, the respondent viewed this as an obligation or duty. Another staff member took a few moments to consider their response before indicating it was a habit to switch off a light when leaving a room (Staff #2). However, their additional comment of:

“Erm, it’s something I do personally...I’m aware of the cost but also of the impact on the environment, something I do at home also, erm, something we try and get the kids to do in school, habits we try and get them into”

signified that there were financial as well as environmental reasons behind the action. Staff #2 believed in the value of ensuring the habit was formed by the pupils in school, but the respondent mirrored the action in their home environment.

Several staff and pupils referred to their re-use of paper and card. For instance, Staff #2 stated *“I do it every day, my box is over there”*. This seemed to indicate a desire to display or confirm their commitment to developing sustainability. By adding *“Er yeah, it’s, it is a habit within school, everybody is aware of that”* (Staff #2), the respondent believed the action was routinely completed by staff and pupils, thereby sustaining the practice of environmental responsibility in the school.

A further indication of the development of routines or habits designed to reduce wastage, was provided by a respondent who described how staff made use of paper and card *“if we need like a bit of card for something, we always put it back in the stock room, so we reuse it rather than binning it, so we’ve got it there”* (Staff #6). The *“stock room”* would tend to be accessed only by staff and so reference to *“we”* referred to this group. Staff #6 was aware of the routine collection and return of partially used sheets of card or paper. They believed other staff members were aware of the routine and understood why it occurred, e.g. exhibited competency.

Several staff members indicated that paper was routinely collected for re-use by the children. Staff #1 mentioned the term *“scrap paper”* and indicated that the children made use of this supply of paper:

“Erm, in the classrooms it would be put into a, if it’s got, if it’s got plain sides, a plain side, we’d usually put it into a scrap paper box, we have a green, in our class, we have a green recycling box and we tend to just put it into there and then the kids can pick it out when they need it”.

The respondent viewed this routine collection of used paper as contributing towards a more sustainable use of resources. In addition, there was an expectation that the pupils would routinely use this supply of paper.

Regarding measures to conserve energy, a pupil referred to the routine of shutting down computers in the school ICT suite *“Erm, usually it’s a habit because normally I, I’d check if everything’s turned, all the computers are turned off in the ICT Suite”* (Pupil #3). The pupil considered this to be a habit but

used the word “normally” to describe the action, thereby indicating it was a procedure that had been implemented to conserve energy and was routinely applied when possible.

Reference was made to the routine operation of heating controls by pupils. The respondent described the daily efforts made to conserve energy by controlling the thermostat. They believed the temperature fluctuated and felt the heating controls were routinely adjusted.

Also, in regard to the performance of routine procedures, every month, a non-teaching member of staff routinely took readings of the school electricity meter to monitor the school’s energy use:

“ it can tell month by month exactly how much electrics we use, now that just won't be lights, that'll be everything else electrical but lights is obviously part of that, erm, so we've, that's the way we can monitor if it's working by the amount of electric that we're using per month and it has been coming down slowly. And, I think it was looking at for a change all the lighting for LED lighting” (Staff #4).

The respondent believed there was a relationship between regular monitoring and the evaluation of procedures or infrastructure. Furthermore, they viewed the process as indicative of the efficiency of technology and energy usage in the school. There was reference made to reductions in usage possibly following the installation of lower energy LED lights. It appeared that regular monitoring had enabled patterns of usage to emerge.

(ii) Recycling paper and batteries, conserving energy used by technology

There seemed to be a whole-school approach to paper and card recycling. For instance, when asked if there was a recycling box in each classroom, Pupil #3 responded “*I don't know, but I think so*” which suggested the pupil believed there was a likelihood of such facilities being available throughout the school. Staff #3 offered more certainty when they stated that all classes had been provided with facilities to aid recycling “*It's generally something we do push, every class has got a recycling box in their classroom, erm, and then as I say they have their scrap paper trays as well so, throughout the school*” (see Figure 1). The respondent believed pupils and staff would be encouraged or perhaps compelled to recycle and reuse due to the provision of collection boxes and trays. Other respondents also used the word “I” (Pupil #7, Pupil #3 and Pupil #6) to describe their action of using the recycling bins in school. This indicated they had personally used the recycling bins or paper collection boxes. In addition, and without hesitation, Pupil #7 explained which bin was used “*We put it [paper that has been printed but is no longer needed] in the blue bin we have and it's called the paper bin*”. The respondent was familiar with the facilities and emphasised the willingness of class members to use

the recycling bins in their room. Pupils #4, #5 and #7 used the word “bin” or “recycling bin” to describe the receptacle for collecting used paper. This straightforward description may have reflected the use of an apparently unremarkable container during a routine procedure.

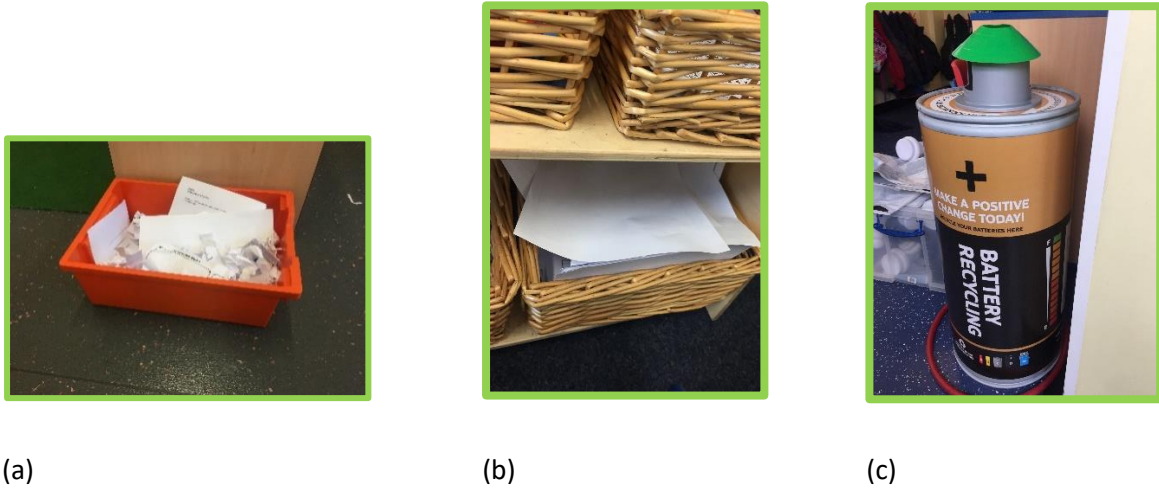


Figure 1. (a) Paper in recycling box; (b) Scrap paper tray; (c) Battery recycling facility

Pupils and staff referred to the collection of spent batteries in preparation for recycling (see Figure 1). This facility was viewed positively and perceived as related to waste reduction. For example, a pupil considered it to be an overt demonstration of the school’s efforts to develop sustainable behaviour:

“This means that school are trying to recycle. We have them because our school is trying hard to help take care of our world. Not everyone [uses it] because just the people who have batteries” (Questionnaire Pupil D).

This was a demonstration of both their knowledge of the impact of the practice on the environment (competency) and their reasoning behind the practice.

But infrequent use of the facility for collecting spent batteries was recalled by Staff #1 *“the only time...when I’ve ever had to put them in the recycling box was when I was doing the library and the clock battery ran out”*. However, this limited experience of utilising the battery recycling facility was perhaps because the respondent was aware of the limited number of items in school which used non-rechargeable (or rechargeable) batteries. This contrasted with Staff #4 who described the location of a newly installed battery-recycling collection point and added *“Yeah, I use it all the time, yeah”*. Staff #4 was familiar with the facility and recognised why they made regular use of it. This was due to the respondent being responsible for the replacement of spent batteries in devices throughout the school. Furthermore, Staff #4 considered it their responsibility to ensure the batteries were recycled. In fact, the respondent was keen to point out the team effort required to ensure the facility was used and

batteries were collected in readiness for recycling “so, I’ll generally provide them [staff] with a battery and they’ll do the rest but they do the recycling as well...so every, everybody in school really, yeah”. It also seemed the respondent trusted the other members of staff to use the facility. Staff #2 described their willingness to use school facilities to recycle used batteries:

“it’s just a regular occurrence, erm, I don’t have a box myself but if I do have batteries, I’ll sort of pass them on to somebody who’s got the box”.

The respondent believed battery recycling was an action that merited the effort required to find a member of staff who had more direct access to the appropriate collection facility. Staff #4 mentioned pupil and staff participation and in fact, Staff #2 emphatically stated that “Yeah, erm, every teacher was encouraged to take one from the staff room and I’m pretty sure every class has now got a box in their room”. The respondent believed staff had taken a battery collection box for use in their own classrooms and so it was likely the whole school was participating in the initiative. The involvement of pupils and staff was also highlighted by Staff #3, which suggested a whole-school approach. The respondent mentioned “staff” rather than teachers which indicated the initiative was aimed at all members of staff, teaching and non-teaching. Indeed, another member of staff, who was not classroom-based, stated:

“we try to get the children involved in the same eco-friendly [actions such as switching off a light], because we have like an Eco-Committee at school which... is one of the main things they have erm, well energy conservation, switching lights off” (Staff #4).

It seemed the respondent believed pupils could be encouraged to participate and practise sustainable behaviours. Although the statement was offered by a non-teaching member of staff, who did not have regular contact time with a class of pupils, they still felt able to encourage sustainable behaviour and they were aware of the work of the Eco-Committee.

The quantity and range of available recycling bins was referred to by the same staff member (Staff #4. See Figure 2). The respondent drew attention to the use of the bins by the kitchen staff “Yeah, but they, they use the same bins, they don’t have the separate, their own bins, they use our bins”. Staff #4 was keen to highlight the joint recycling efforts of school staff and their willingness to share facilities to recycle non-food waste. Despite the kitchen staff being a constituent part of the school, it seemed Staff #4 differentiated by making reference to “our bins” when referring to their use of the bins for recycling. This demonstrated emotional meaning whereby the respondent demonstrated a sense of pride and ownership of the facilities and influenced their continued usage.



Figure 2. Outside store of recycling bins

Theme 3: Outcomes of approaches used to develop environmental responsibility

The findings from the previous theme, *Approaches used to develop environmental responsibility*, enable the exploration of staff and pupil responses to these approaches in the following sections. As practitioners of sustainable actions and procedures, pupils and staff displayed differing values, thinking and beliefs about sustainable practices and this contributed to their willingness or ability to participate in actions designed to encourage sustainable behaviour. Pupils and staff recognised their own and others' conflicting actions and reasoning. Additionally, the findings indicate that the continuation of old habits, the school setting and its religious character contribute to differentiation within the practices. This is understandable given the range of actors and social interactions taking place in the school. The findings provide insight into the perceptions of staff and pupils as they considered the routines and procedures they have performed, modelled, observed or developed.

The findings have been organised according to broadly similar features, but naturally there is some overlap of concepts and elements within each section.

Sub-theme 3A: Competency and cultural meaning

(i) Competency

For a practice to be sustained it needs a combination of elements, including individuals who possess the skills, awareness or knowledge to use the facilities or technology needed to perform procedures or routines. The findings provided clear examples of pupils and staff demonstrating their knowledge and expertise when practising environmental responsibility. For example, regarding lighting,

observers were accustomed to seeing lights being switched off when leaving a room and it was accepted as a routine action. According to Pupil #5, "...[the] person at the back of the line will turn the light off if no-one else is in the classroom". What seemed to be clear from the statement was that Pupil #5 had confidence that the light would be switched off because someone with similar beliefs to their own would ensure this occurred. Additionally, the pupil respondent suggested that if someone was observed switching off a light in school, it would be unlikely that an explanation for the action would be offered. In fact, the pupil believed that no explanation was expected or necessary because they were familiar with the reasoning behind the action. This was an indication of an action that had been performed with little to no need for conscious thought (Warde, 2005), whereas in relation to technology, it seemed evident that consideration of a range of energy-efficient settings was required. Indeed, it seemed apparent that throughout the day, pupils were involved in energy-conservation actions. Pupil #3 described their own involvement in the process:

"well normally the computers just, erm, are like, put...on sleep mode so like but at the end, erm, at the end of the day I just turn, I turn them off".

This demanded an understanding of timetabling and the skills to determine and amend the setting. This was confirmed by Pupil #4 who stated:

"We turn them on like when a class is having an ICT lesson and sometimes pupils in our class and year six are allowed to go in [to the ICT suite] to like go on games and, and practise times tables...They shut down, we shut them down after every lesson and, but since there's another class coming in after us, what we normally do is we just put them on standby".

This explanation for placing the computers on standby mode, demonstrated that the pupil possessed the capability to manage the varying modes and timetabling of classes and in so doing, to engage in the practice for reducing energy consumption.

Regarding the collection of paper for recycling, this was a regularly observed routine and was perceived as a part of everyday school life (Pupil #4). Pupils were competent recycling practitioners and aware of their role in the process:

"When I've done it, we've probably done the questions and then someone comes round with the bin and then it, and then if it's like been cut out of and we can't use it again, it will be, erm, it will be put in, in the bin, which will be going to the recycle bin" (Pupil #5).

There was a recognition of the transition from one practice to the next, e.g., from collection in the classroom to collection for recycling. This understanding was also evident regarding the transition from the practices of reuse to recycling. That is, Pupil #5 viewed the contents of the “scrap paper box” as being readily available for reuse by pupils and accepted when paper was no longer of use to them or their peers, but instead was appropriate for recycling. This was a demonstration of a willingness to use the appropriate facilities (materials) to repeat the procedures and this repetition suggested the practices would continue to take place. Staff also outlined their reuse of paper and, as with pupils, mentioned a “scrap paper” drawer or tray facility which contained paper that had been printed on one side only. Staff #1 described their own routine reuse of this paper which demonstrated their belief in modelling sustainable practice and reducing their consumption of resources. The collection of paper by staff for reuse by the pupils provided an example of two interrelated practices. Overall, the respondents indicated that the procedures were a familiar part of the everyday school life. However, a comment from one respondent suggested some staff decided to either save paper for reuse or for recycling and this depended on where the printing or photocopying had taken place:

“it just tends to like yeah, people do and sometimes they don't give it to us and it just goes in the, just straight into the paper recycling thing but if it's downstairs then it will tend to come to us” (Staff #5).

The respondent credited staff with making decisions seemingly based on the location of the printer or photocopier used to create the copies. These decisions impacted on the overall practice of more sustainable use of resources. Additionally, they were influenced not only by the location of printing facilities, but also by the value they attributed to the resource, e.g. whether the paper was worth reusing.

(ii) Cultural meaning: Catholic character of the school

Approaching sustainability as a whole school effort encouraged a confident outlook from Staff #2. The respondent emphasised the Catholic character of the school, whereby care of the “common home” included tangible actions such as switching off a light. It seemed the respondent believed staff and pupils recognised their obligation due to the school’s religious character and was confident this would encourage environmental awareness and responsibility. This was facilitated by use of the school curriculum to teach sustainability from a Catholic perspective. The perception that there was a link between the religious beliefs of an actor and their actions, suggested the respondent believed that the cultural meaning of the common home would influence their practice.

Sub-theme 3B: Influence of the setting and practicalities

Due to the underlying unequal power balance and expectations regarding participation, a respondent assumed that the pupils would be willing to develop the know-how to perform an energy-saving routine. That is, Staff #5 explained:

“it's something I don't, I'm not in the habit of doing it [switching off a light when leaving a room] but what, what we're going to hopefully do is get the children to remember but for it, they don't remember, so we have to remember and then we forget”.

It seemed that the respondent was not engaged with the energy-saving practice and expected the pupils to routinely perform the procedure instead. Their unwillingness to develop the competency to perform the routine, was influenced by the nature of the setting and by their own thinking regarding the practice. That is, in a school setting the reasoning behind the performance of tasks by pupils is generally hastened by instruction from (and the expectations of) staff. As a result, the respondent reasoned that the pupils would perform the task. In addition, the meaning behind the procedure had influenced the respondent's practice, so that they were unwilling to develop the necessary levels of competency. This view contrasted with the intended development of pupils' knowledge of the properties of plastic. That is, it was expected that pupils would gain an understanding of how to “*solve the nation's plastic problem*” (National Schools Partnership, 2017) by making use of a resource produced by a well-known supermarket chain. Having said this, it was concluded by Huckle (2013) that sponsored materials such as this, served to limit debate due to pupils associating a cause with the brand sponsoring the learning materials, rather than seeing the wider problem.

Furthermore, the practicalities of everyday factors in the school setting hindered the practices of reducing the school's reliance on the use of plastic products. Staff #3 referred to the targeted reduction of plastic used throughout the school:

“our big one next to tackle is the plastic, erm. In an ideal world we'd become a plastic free school but just logistically wise and then you've got other things like health and hygiene to consider”.

The respondent viewed a drive to address the use of plastic items in school as a major undertaking. They identified difficulties associated with this objective, such as the “logistics” of the proposal, e.g. the sourcing and financial implications of replacing plastic items with alternatives made from sustainable sources. Staff #3 had also considered further practical issues, such as statutory food

hygiene requirements and the use of plastic to wrap food stuffs or the straws used with milk given to pupils.

In an effort to reduce plastic waste, the use of reusable plastic drinking bottles had been instituted. Younger pupils were observed drinking from their bottles and offered logical reasoning for their use. The practical thinking behind refilling the bottles was attributed to thirst and suggested the practice was likely to be repeated by these pupils, but not necessarily as a result of reasoning related to sustainable consumption. Older pupils believed the provision of reusable bottles equated to environmental responsibility and considered reuse of plastic water bottles as a means to lessen the negative impact of plastic (its manufacture or waste) on the environment. However, one respondent determined that it was a “class rule” to use a shallow tray to store the bottles. This indicated that the meaning behind the procedure was closely associated with the apparent expectations within the school setting. Whereas the meaning attributed to paper and its collection using boxes (located in each classroom and other locations around the school) was more overtly aligned with the practice of sustainable consumption. This perception of a routine being deemed to be a “class rule” was also applied to an energy-saving procedure. However, the environmentally responsible thinking behind the procedure had also been recognised in this case (Questionnaire Pupil D). Although a sign which served originally to remind individuals to switch off lights was viewed as largely redundant due to routinised nature of the action, it was also believed to be an expectation within the setting and had been aimed primarily at pupils (see Figure 3).



Figure 3. Reminder to switch off lights

The findings also highlighted the feasibility issues concerned with sustainable practice and Eco-Committee objectives. An aim of the Committee’s Action Plan was to develop an outdoor learning space. This perhaps accounted for a respondent’s reference to the construction of an “ecobrick” outdoor shelter for the pupils to design, make and use *“that’s a sort of, a big project that I’d like to do,*

it's just the logistics of doing it, designing it and getting those curriculum links" (Staff #3). The respondent considered the project to be of value, but viewed much of the process, from design to construction, to be a complex, and perhaps unfamiliar, task. The respondent had referred to the creation of "ecobricks" and so had apparently investigated, or at least become aware of, the use of unrecyclable plastic to create blocks that in turn could generate a more practical understanding of "waste" materials. This hands-on approach also necessitated the involvement of the whole-school community to collect the materials for the creation of the blocks. Yet, the staff respondent was apprehensive due to pressure of time, curriculum expectations and the practical nature of the project that was somewhat different from the norm, whereby structures would be bought and installed.

Sub-theme 3C: Differentiation

(i) Staff and pupil recognition of differing practice

The findings indicate that staff and pupils revealed varying levels of commitment, skills and knowledge. This differentiation within the practice was evident in respect to the use of energy-conserving actions and lighting. For example, Staff #4 (non-teaching) believed that teaching staff were likely to show differing levels of commitment to the performance of routines *"the teachers, as they come in, they put their own classroom lights on and turn them off when they leave or should do"*. Also, this example provided insight into the range of interactions staff and pupils had to manage during a school day. These interactions required negotiation and compromise in order to sustain the practices. Staff #2 similarly alluded to the varied performance of routines from staff:

"teachers usually, erm, are in charge of obviously switching the laptops and the computers and the boards on, erm, in the morning. Erm, sometimes there's an issue with switching them off, erm, some do leave them on, which is a fire hazard as well as it uses up energy".

The respondent had considered the environmental impact of staff failing to perform the routine. However, their thinking differed from those who did not perform the action, because they were aware of reasoning related to issues of both safety and sustainability. The findings demonstrated that this practice of energy conservation was not routinely performed by staff. That is, Staff #1 explained that:

"I'm often turning the lights on then off and then people asking why is the light switched off, but when we leave the room at lunchtime there's not generally somebody in class then for the next half hour or so, so we do have some classroom monitors that are supposed to turn the lights off but they don't always remember to do that".

The respondent demonstrated their values by regularly switching off unused lighting. But it was evident that their thinking behind the use of energy differed from other individuals. This included their colleagues, as evidenced by a later observation from Staff #1:

“but say like the staff room, you can manually turn those lights off, so at the end of the day perhaps if someone's forgotten but the next person would just turn them off”.

Despite clear differences in the performance of the routine, the respondent believed that the practice would be sustained due to the actions of staff with similar beliefs to their own. However, conflicting actions had been observed within the classroom. Pupil #3 noted that *“normally in class we will always have the lights on, even if it's quite sunny”*. The pupil recognised the contradictory nature of the action which regularly occurred in the setting. Pupil #4 concurred with the perceptions of their peer:

“Sometimes and, when we're in class and the teachers sometimes leave the lights on when we don't, don't need them on and like, and sometimes waste quite a bit of electricity”.

Both pupils demonstrated similar reasoning and recognised the divergence of thinking within the classroom practice. Additionally, there was evidence of differing reasoning from pupils regarding lighting and energy conservation:

“we do [carefully use resources and energy] normally but then sometimes it might just be a once or twice we might just forget to do something like turn off a light in the classroom when we've just gone out to church or something” (Pupil #5).

It appeared the respondent felt that pupils and staff behaved in an environmentally conscious manner for the most part and so it was acceptable to have occasional lapses. The practice of energy conservation required an emotional response to lighting and the willingness or competency to perform the routine of switching off lighting if it was not needed. Yet the duration of time spent away from the classroom influenced engagement with the practice and on occasions, the practice was not reproduced. Moreover, regarding their thinking related to paper as a resource, Pupil #7 indicated that it was a disposable product *“Sometimes I forget and I just put it in the bin, I don't need it anymore”*. This suggested the pupil had knowledge of the procedure for collecting paper in readiness for recycling, but it was not valued as a resource that warranted the effort.

The findings provided further demonstrations of pupil and staff awareness of their own practice, as outlined by Staff #5 *“Electricity like I say it tends to be the end of the day before I'm thinking about lights and things like that, so we could definitely improve on that”*. This suggested the respondent had

knowledge of the management of energy consumption in their classroom, but it was necessary to decide between curriculum commitments and the conservation of electricity. Similarly, Staff #3 and Staff #6 described the influence of day-to-day school life which hindered their practice of sustainability. Furthermore, when faced with confronting their own efforts to practise sustainability, Staff #6 responded with *“We’re not really aware of what we use to be honest”*. Their limited knowledge regarding the consumption of energy (competency) was an indication of differentiation within the practice and concurred with pupil observations of staff and their perceived wastage of energy (Pupil #4). The pupil distinguished between the efforts of staff and those of pupils and emphasised the differing levels of commitment the performance of energy-saving actions.

Another demonstration of differentiation within a practice related to a whole-school campaign which aimed to encourage more efficient use of energy:

“We tried the switch off fortnight, erm, it just, people did it in terms of trying to reduce their energy usage but it didn’t have as big an impact because I think it was the weeks that we chose, you know what it’s like when it’s a busy curriculum” (Staff #3).

Although the scheme aimed to encourage energy efficiency at home and at school (by undertaking curriculum-based activities), the campaign also aimed to motivate school leadership by advising them of potential energy bill savings as a result of taking part. This appealed to the established reasoning regarding environmentally responsible actions and the potential for making financial savings (Hargreaves, 2011). But the influence of an already laden curriculum and the lack of positive meaning behind the practice, contributed to its negligible reproduction.

(ii) Conflicting beliefs, contradictory practices

There was recognition of conflicting reasoning and how this contributed to differentiation. Staff #1 noted the inconsistent meanings behind paper and food waste:

“I think we’re good on paper and but then we don’t really differentiate our waste further than that, so at dinner time there is a bin, well there’s two bins and everything goes in that bin, so whether that’s packed lunch, crisp wrappers, erm, cans, vegetable, you know, erm, fruit peelings, food that’s not been eaten, it all goes into one”.

The staff member recognised the need for a change to the procedure to separate food waste from associated packaging in order to support the practices of recycling. Moreover, they questioned the disparity regarding food waste, when compared with other forms of waste separation taking place in

school. Further insight into the performance of conflicting practices in the setting was provided by the respondent. This related to the practices of utilising re-usable tableware and the use of disposable, single-use products:

“for some reason, the end of the school year and at Christmastime...the kitchen staff finish, it's their kind of end of [year] thing as well and so they tend to have like a special thing whether fish and chips or something like that or, erm, Christmas dinner and then it's served on disposable plates or disposable cutlery, disposable cups and then it all just goes in to, we tried to separate, at Christmastime we were putting all cardboard into one and separating that but everything else was just going into one, one thing”.

The respondent identified two issues that were problematic. Firstly, the use of disposable tableware, contrary to the provision of reusable tableware throughout the year. Secondly, the effective separation of recyclable from non-recyclable items was difficult. The annual use of disposable tableware signalled that the reasoning behind the practice differed from the thinking evident during the remainder of the school year. The beliefs of Staff #1 (regarding consumption of resources and food waste) also differed from those who performed the amended lunchtime routine. That is, regarding consumption practices, there was a clash between an annual show of convenience (disposable) and a daily demonstration of sustainability (reusable). It was also implied that throughout the year, effort was required to perform environmentally responsible actions and as a result it was thought to be an indulgence to break from these practices.

The findings also exposed conflicting beliefs regarding paper recycling and reuse. Teaching staff were identified as responsible for creating “scrap paper” for reuse. Pupil #5 highlighted an example of this somewhat contradictory behaviour:

“It's not normally us [that deposits printed paper into the scrap paper box] because there's, erm, the teachers normally print it off, erm, out the printer and if they've not, if they've not, if something's done with the not used [paper], erm, they put it in the scrap paper”.

The respondent understood that the paper was collected in order to be reused by the pupils, but it had been created by staff who had printed a surplus number of copies. In addition, a pupil explained that although paper was reused and was not thrown away (Pupil #2), they “print off spare” which were collected for reuse. Moreover, they had observed their peers and some staff carrying out this action. These routines, seemingly accepted as being the norm, were examples of interrelated practices taking place, whereby one practice influences the other.

(iii) Changes to practice

Differences in meaning or competency can lead to changes within a practice, as shown by an example provided by a pupil. It was explained that when assigned pupils were tasked with switching off lights but failed to perform the action, the routine had been modified to enable the last person to leave the classroom to switch them off instead (Pupil #7 and Pupil #6). A further example of the modification of a procedure within a practice was provided by Staff #3 who summarised the change made to an individual's morning routine:

“Mr X used to come in the morning at six and he used to put all the classroom lights on for us but we've made a decision as staff, that we'll put them on and then hopefully turn them off at the end of the day”.

It seemed the respondent realised that a change of procedure was required. But their use of the word *“hopefully”* indicated they were cautious of expecting all staff to incorporate the routine into their school day. There was awareness of the need to change the procedure in order to ensure the practice of energy conservation was maintained. Moreover, another respondent believed the original procedure was habitual and hindered sustainable practice:

“that was an hour within the school of energy being wasted, erm, especially in the summer, erm, months as well when it's not necessary to have the lights on, it was just habit that he was in” (Staff #2).

It seemed evident that there was a connection between practices and additionally, there was a willingness to support the continuation of efforts to reduce consumption by developing the competency to perform an amended routine.

Following on from the exploration of approaches used to develop environmentally responsible behaviour in school, the subsequent sections focus on the examination of central elements of the Eco-Schools ethos: participation, monetary benefits and changing behaviour. Additionally, there is consideration of other influences which contribute to the development of environmentally responsible behaviour in school.

Theme 4: Influence of the Eco-Schools ethos

As an Eco-School, it would be anticipated that a principal aim of the study site would involve commitment to the development of environmentally responsible practices. Indeed, the earlier sections have presented insight into the environmental perceptions of staff and pupils and their

responses to the approaches used to develop such practices in their school. Moreover, the Eco-Schools programme presents itself as being “*pupil-led, involving hands-on learning*” whilst “*creating financial savings*” (NAHT, 2021) and so a closer examination of these elements of its ethos would assist in understanding the thinking and actions taking place in the study’s setting. Accordingly, this section offers findings related to the influence or impact of the Eco-School ethos on the practice and perceptions of pupils and staff. The findings demonstrate pupils and staff routinely participate in light green actions, but there is limited scope for active participation in decision-making. Practice can be influenced by the prospect of monetary benefits. Consideration of these benefits also reveals insight into the choices made when considering financial outlay. Respondents demonstrated their knowledge and reasoning when discussing efforts to reduce energy consumption. Technological developments influenced changes in water and battery use, whilst changes to the practice of watering outdoor plants was influenced by the practical consideration of ease. There was evidence of other influences on sustainable practice, such as Catholic directives and participation in the Forest School initiative.

The findings have been organised according to the key elements of the Eco-Schools ethos.

Sub-theme 4A: Participation

(i) Routine actions

It is clear from findings outlined in previous sections that pupils and staff routinely participated in the performance of actions designed to reduce the consumption of resources and energy. These involved easily completed tasks, such as switching off a light or collecting paper for reuse or recycling. Other procedures required a greater level of skill and knowledge, such as determining and applying an energy-saving setting to a computer. However, these routines were examples of passive participation, (e.g. not pupil-led but directed by a staff member) and there was no evidence of pupils using their voice to promote their use. The Eco-Committee offered an opportunity for pupils to actively participate by discussing actions and targets. Yet apart from an instance of a pupil sharing their admiration of the Committee and thereby signalling similar awareness and thinking as their Committee peers (Pupil #2), it was evident that staff perceptions of the Committee were more forthcoming. That is, staff viewed the group as a positive influence on sustainable practice due to their ability to model actions and, in some cases, enforce them. The Committee was also perceived as being made up of individuals who were capable of communicating and disseminating environmental information. It seemed that staff assigned positive meaning to the Committee and felt the members possessed the skills (competency) to influence their peers and staff to repeat the routine actions.

(ii) Limited scope for active participation

But additionally, the findings revealed that pupils who were not part of the Eco-Committee were restricted from taking part in a routine designed to reduce litter in the school grounds. This was shared by Staff #1:

“a lot of the children are aware of litter and, and the problems with that and the Eco-Committee will go around the school border and collect any bits that have got blown in on to site from outside”.

It had been highlighted that pupils attributed emotional meaning to litter but were apparently unable to participate in the practice of its removal. This restricted participation was perhaps due to hygiene and safety concerns, yet it seemed evident that most pupils were unable to demonstrate their agency and make a difference to their school grounds (Barratt Hacking, Barratt and Scott, 2007). Additionally, the findings indicated that the Eco-Committee members were limited to the task of litter removal, rather than showing evidence of an empowered innovative or collaborative undertaking for example. Indeed, by constraining the skills of pupils so that only a select few were given the opportunity to passively perform a relatively straightforward task, it seemed that the school setting and its inherent power relations (Warde, 2005) had influenced the practices associated with becoming aware of waste and its effect on the environment. Moreover, restricting the action to a group of pupil representatives (Eco-Committee members) had limited the means for more pupils to become involved in making changes e.g. surveying litter in the locality, campaigning for a deposit return scheme (Percy-Smith, 2010).

(iii) Further opportunities for participation

A further case of active participation in the process of making environment-related decisions was disclosed by a respondent. However, it was evident that no reference was made to the Eco-Committee. Instead, the School Council (another forum for pupil participation) was cited:

“Yeah, er, I think last year the School Council [pupils elected to represent their peers and make improvements] came and asked us if we had any ideas to save electricity” (Pupil #6).

This demonstration of pupils actively seeking ideas from their peers also revealed their ability to gather information in preparation for determining the best course of action.

Pupils were aware of the roles and responsibilities of their peers, e.g. as communicators of information. Again, although not in reference to their peers from the Eco-Committee, a respondent stated:

“when we're in the hall...like in assembly [the regular, formal gathering of staff and pupils], so the young school leaders will, erm, say about it [conserving energy and resources] and we might put our hands up or to ask a question or just give a bit of advice, like advice, because they normally ask if there's, if you like have any ideas” (Pupil #5).

The respondent considered this to be an ideal opportunity to effectively share their ideas or opinions with their peers and believed they would be valued.

Sub-theme 4B: Monetary benefits

(i) Reasoning

By making changes to the practice of buying replacement equipment, it seemed that financial savings could be made. More specifically, by extending the lifespan of equipment and resources, Staff #4 reasoned that by switching off computers *“the life expectancy is longer, plus the energy consumption that they use as well”*. The suggestion of beneficial outcomes from a more environmentally responsible approach to energy consumption, reflected the influence of the Eco-School ethos and demonstrated an understanding of the links between technology and energy consumption. By demonstrating their involvement in the procedure, the staff member revealed both their competency to perform the routine and the meaning attributed to the practice. They valued the equipment and believed the action had a positive impact on energy consumption and so there was a willingness to continue the practice by repeating the procedure.

(ii) Competing considerations

The issue of reconciling environmental responsibility with financial considerations was noted by Staff #2:

“we're actually looking into improving the lighting systems in here and down in the key stage one corridor, because they're quite sort of archaic now, erm, and they could be a lot more energy efficient, erm, and cost efficient as well comes into it”.

The respondent believed that new technology was likely to use less energy than old technology, however, they were somewhat sceptical of financial savings arising from the replacement lights.

Despite noting the incentive of gaining supplementary government funding to support upgrades, the respondent went on to express doubts about the monetary benefits of updated lighting. This finding provided insight into the decisions faced in everyday life and which impacted on practice.

Sub-theme 4C: Changes to practice

(i) Impact of energy-saving activities

Monitoring energy use is an expected element of the Eco-School ethos and pupils are encouraged to take regular utility meter readings to monitor the progress of the schools' energy saving activities. Regular monitoring of electricity use had provided the information needed to determine the school's energy efficiency rating. Staff knowledge of the impact of energy-saving actions extended to their recognition of the resulting Display Energy Certificate (DEC). Staff #4 was aware of both its significance in terms of energy use and that it was subject to changes. This suggested that the respondent possessed the know-how to recognise the impact of energy-saving procedures on levels of efficiency. In addition to competency, the respondent's positive response to the rating indicated the procedures were perceived as effective.

(ii) Impact of technological changes

Other practitioners were aware of the impact of technological changes on practice. That is, the development of technology had contributed to a reduced reliance on batteries. Consequently, several electronic resources used to support learning have moved from battery power to USB mains adapter. When Staff #1 commented on the source of power used by programmable robots, there were evident links to the eco topic of "Waste" (regarding the minimisation of waste):

"not a lot of our equipment is battery. It's rechargeable stuff...we have some like programmable bug things [used to develop directional language] but they go on to a charger that's mains powered".

The respondent considered this to be an example of a device that would previously have required batteries. This suggested that technology purchased for use in school, had evolved and rechargeable devices had largely replaced those that had been powered by either disposable or rechargeable batteries. The respondent was aware of the developments in technology which had influenced changes in practice, namely the use of battery power evolving to the use of USB to charge devices. Furthermore, there was an indication of a relationship between two practices, whereby changes in one practice generated adjustments to another practice. In this instance, the practice of utilising USB-

charged resources in the classroom and the practice of collecting non-rechargeable batteries in preparation for recycling. This had been noted by Staff #5 who had gauged that developments in technology had reduced the necessity to dispose of or “*get rid of any batteries*” because “*the things with the batteries have all gone*”. It was clear that the respondent possessed the knowledge (competency) to recognise and accept this change to practice.

Sub-theme 4D: Other influences

(i) Ease of practice and irritation

The decision to ensure plants located in the school grounds were able to be easily watered, contributed to a change to the watering procedure due to the installation of a water butt to sustainably collect water (see Figure 4). A staff respondent explained that the task of carrying water from the classroom to the garden, was arduous and it was this need for a practical change that necessitated the provision of an outdoor water source (Staff #1). The respondent did not make direct reference to water conservation or a sustainable water supply. This indicated practical reasoning behind the changed procedure and included provision of the water butt to ease the action of watering the outdoor plants. The negative emotional response to the laborious nature of the original practice necessitated change, otherwise it was unlikely the practice would have continued.



Figure 4. Water butt

The negative responses of annoyance and irritation supported the practice of switching off a light according to Staff #2. They indicated that the reasoning behind switching off a particular light every day was due to the sound it made “*There is actually a light in here that's always buzzing and I always turn it off*”. Although it could be suggested that the light in question was not needed if it could be readily switched off, this example was apparently the sole instance of energy conservation due to irritation.

(ii) Cultural meaning of a Catholic directive

The influence of the Roman Catholic character of the school was apparent when the same respondent made reference to a papal encyclical (letter) and its importance as a guide to living sustainably. Staff #2 indicated that the points made in the encyclical were due to form part of the curriculum in the school:

“[regarding the] recent encyclical...called Laudato Si’, erm, so it’s something that we’re looking to weave into the curriculum...it’s something we’re developing at the moment, our sense of mission and identity and who we are...is about being stewards of creation...and it’s about care for the common home, erm, doing all these... actions that we can do in order to look after the world that we live in” .

The respondent believed the letter provided significant guidance to Catholics and accepted responsibility for ensuring sustainable behaviour was fostered. The papal letter outlined ways to live sustainably, in addition to the effects of global warming and emphasised a world-wide response to the issues. The respondent alluded to some of these elements when they re-emphasised their view of the encyclical. This perhaps indicated both their strength of opinion and the influence the letter (and by default, the Roman Catholic character of the school) had on the decision to include it in the curriculum. It was evident that the respondent attributed cultural meaning to the letter, and they had knowledge and understanding of its contents. The curriculum was intended to be used to facilitate the practices of sustainable living and so it was evident that the encyclical was anticipated to influence environmentally responsible practices in the school. This would either be complementary to or instead of the Eco-Schools programme.

(iii) Forest School and curriculum expectations

Reference to a further environmental education programme was made by Staff #2. The Forest School programme:

“which is where the kids go to basically be at X Wood down the road and do wonderful things in nature but it’s all part of, erm, the general ethos of the school which... these children need to know that we have a world that we need to look after”.

Staff #2 believed the programme complemented the school ethos by acting as a practical means to develop environmental knowledge and understanding from regular, first-hand experience. The pupil and staff endeavours were displayed in a classroom which provided evidence of the activities.

According to the staff member, the pupils had developed a new respect and care for their environment. They had become aware of sights, sounds and textures, as well as developing an understanding of bearings, respectfulness and inquisitiveness. In addition to this development of environmental skills and knowledge, it was clear that the participants displayed pride and commitment, which signalled positive emotional meaning behind the practice.

Moreover, the respondent viewed the Forest School programme as an additional means to link to Laudato Si by developing pupils' environmental awareness. It was clear that the respondent viewed the activities within the programme as sharing elements of practice with those outlined in Laudato Si and the Eco-Schools programme, e.g. engaging with the natural environment, knowledge of environmental issues. No pupils made reference to the Forest School initiative which implied its relevance or outcomes were limited to the lower Key Stage age groups, rather than to the whole school.

Regarding the use of the curriculum to support the knowledge of and reasoning behind sustainable practice, a staff respondent proposed that environmental education already formed part of the Early Years Foundation Stage national standards (EYFS):

“as part of our EYFS curriculum it talks about how the people impact on their environment, so it's something that we do talk about with them quite a lot because it's part of their learning”
(Staff 5).

It appeared that Early Learning Goals (ELGs) such as *“Understanding the World”* (ELG 14) were used to make learning relevant to the real world and in turn, language goals encouraged pupils to use terminology such as *“recycling bin”*. Therefore, the materials to facilitate awareness and know-how were present in the EYFS curriculum and these supported meaningful participation by the youngest pupils in the school.

Summary

Organised under central themes to reflect the key questions, this chapter has provided a descriptive summary of the main findings from the study. The following chapter summarises the main findings and discusses them in relation to relevant literature to highlight the implications of the research.

Chapter 5

Discussion of findings from interviews, observations, questionnaires and documentary evidence

Introduction

The study aimed to explore the environmental beliefs and actions of members of an Eco-School. The views and opinions of pupils and staff were given prominence and offered insight into the school's ethos and efforts to reduce waste and conserve energy. The study highlighted the similarities and differences in perceptions, approaches and capabilities of pupils and staff, and illustrated the links between the range of concepts, such as participation, voice and beliefs, which were apparent as the staff and pupils considered the sustainable practices being performed in school. The primary school setting offered an opportunity to gain understanding of the range of thoughts and skills, norms and routines taking place and how these differentiated elements of practice influence its continuation and evolution.

The previous chapter communicated the research findings under the central themes of *Pupil and staff understanding of environmental responsibility in school*, *Approaches used to develop environmental responsibility*, *Outcomes of approaches used to develop environmental responsibility*, *Influence of the Eco-Schools ethos*. This chapter restates the theory behind the research (social practice theory), offers a summary of the main findings and provides a discussion of what the overarching themes mean when compared to the wider context of prior research. The themes and sub-themes are shown in Table 3 below.

Guiding theory

In the Methodology chapter, the reasoning behind the use of social practice theory was discussed. That is, as staff and pupils engage in the practices of a behaviour-change initiative that aims to develop an awareness of environmental responsibility, they make use of a range of skills, interpretations and actions. The holistic nature of social practice theory enables a breadth of view which not only encompasses the perceptions of practitioners as they undertake sustainable routines, but also their use of resources and the development of skills needed to repeat these routines. The consideration of these elements, together with emerging concepts such as agency and voice, enable an understanding of the whole practice.

Table 3. Discussion: Themes and sub-themes.

Theme 1: Pupil and staff understanding of environmental responsibility in school	Theme 2: Approaches used to develop environmental responsibility	Theme 3: Outcomes of approaches used to develop environmental responsibility	Theme 4: Influence of the Eco-Schools ethos
Sub-theme 1A: Influence of the school setting on the understanding of environmental responsibility (i) Participation, expectations and power relations (ii) Terminology (iii) Use of sponsored materials (iv) Making a difference (v) Influence of Roman Catholic character of the school	Sub-theme 2A: Teacher-directed pupil participation	Sub-theme 3A: Holistic approach, but not a whole-school response	Sub-theme 4A: Pupil participation
Sub-theme 1B: Understanding the practice of environmental responsibility (i) Meaning (ii) Competency and materials	Sub-theme 2B: Observation and modelling	Sub-theme 3B: Differing perceptions of actions	Sub-theme 4B: The Eco-Committee and pupils
	Sub-theme 2C: Incentives, rewards and habits	Sub-theme 3C: Religion as a guiding method	Sub-theme 4C: The Eco-Committee and staff
	Sub-theme 2D: Using a religious-based approach	Sub-theme 3D: Routines and practice	Sub-theme 4D: Staff as facilitators
		Sub-theme 3E: Observation of consistent and conflicting procedures	Sub-theme 4E: School leadership and financial savings

Main findings from the interviews, observations, questionnaires and documentary evidence

The previous chapter presented the findings from the analysis of the interviews with pupils and staff, observations, pupil questionnaires and additional documentary evidence. The findings provide insight into the everyday sustainable consumption practices taking place in an Eco-School. They indicate what has influenced practice, why changes to practices may have taken place and how the practices are perceived by staff and pupils. In this study, the nature of the setting and its Roman Catholic character served to influence the reasoning behind actions. Practices were also influenced by practicalities (ease and time-efficiency) as well as the appeal of rewards and incentives. The draw of monetary benefits resulting from reduced energy bills, also served to influence the reasoning behind energy-saving actions and routines. Moreover, differing competencies and beliefs of staff and pupils influenced their willingness to reproduce the routines and procedures associated with environmentally responsible practice. These differentiated elements of practice included conflicting beliefs and contradictory reasoning, as well as similar thinking and comparable levels of awareness and know-how. However,

many of the actions were easily achieved and required little conscious thought and although pupils and staff applauded the sustainable efforts taking place, there was also some recognition that it did not go far enough to lead to real changes in consumption practices. Further, there was pupil awareness of the limited scope of actions and for active participation of pupils. Indeed, it seemed that the Eco-Committee enabled a group of pupils to participate in environmental decision-making, but its effectiveness as a genuine means to empower pupils was questioned.

Using the lens of social practice theory, the following sections will discuss the findings to learn more about the environmentally responsible practices in an Eco-School and how these are perceived by staff and pupils.

Theme 1: Pupil and staff understanding of environmental responsibility in school

The main findings from the theme of "*Pupil and staff understanding of environmental responsibility in school*" are discussed in this section. With regard to this understanding, the influence of the school setting and its Catholic character are considered, whilst the concepts of agency, beliefs, power, and participation are highlighted. Reference is made to the key elements of sustainable practice, in addition to the discussion of roles and expectations.

Sub-theme 1A: Influence of the school setting on the understanding of environmental responsibility

(i) Participation, expectations and power relations

Prior studies have noted the influence of the setting on the development of school-based sustainability (Evans, Whitehouse and Gooch, 2012; Wilson, 2012). In a primary school setting where power relations based largely on hierarchy (adult-child) are at play, it may be that pupil understanding of the thinking, skills and actions behind environmentally responsible practices could be influenced by the knowledge of staff or their willingness to view pupils as active participants in the process of decision-making related to their learning (Ahonen et al., 2014). It was clear that pupils and staff were exposed to and performed a range of easily achievable actions, and these contributed to their perceptions of environmental responsibility in school. Yet it was unclear why the actions were mainly of this type. Encouraging the performance of small actions was possibly due to a limited belief in the capabilities of pupils to act to make changes (Aarnio-Linnanvuori, 2019). Alternatively, staff may have been reluctant to facilitate more ambitious actions because they were wary of addressing potentially controversial areas related to activism or bias (Dunlop et al., 2021). These may be viewed as understandable concerns, yet it has been suggested by Dunlop et al. that the curriculum could be

justifiably used to develop the reasoning skills needed to form arguments and voice environmental concerns (ibid. p. 297).

By intentionally or unintentionally restricting the actions to small actions, the school had reduced the opportunities for pupils to become actively involved in more significant actions, such as writing to and meeting local councillors to discuss the impact of traffic on levels of pollution for instance (Aarnio-Linnanvuori, 2019). Having said this, staff did not suggest that pupils had been limited to a relatively narrow range of easily attainable actions for any particular reason. Instead, it was taken for granted that routine actions such as recycling and switching off lights would be performed largely by pupils. This concurs with Gifford and Nilsson's (2014) review of factors that influence environmental behaviour, which concluded that subjective norms represent the behaviours that are expected from others, in this case school staff. Furthermore, when staff modelled sustainable actions, pupils observed these routines being practised by those with social power and so were likely to emulate them (Frayer and Klausmeier, 1972). It was possible that pupils performed such environmentally responsible tasks because this compliance was the expected behaviour in a school setting. In other words, pupils completed actions that were viewed as typical or familiar in a setting where tasks, roles and rules would be introduced, reinforced and accepted as part of the everyday life within school.

Furthermore, the Eco-Schools programme encourages pupils to be empowered and to take a leading role in environmental decision-making to become agents of change. In order to enable effective participation in the process of decision-making, setting targets and developing actions designed to generate changes, staff must be willing to encourage a collaborative approach and demonstrate a willingness to trust the capabilities of pupils (Percy-Smith, 2010). This level of active pupil participation would potentially require changes to the unequal power relations in the school setting. It was evident in school that rather than take a leading role, the expectation centred around pupils passively performing the routines and procedures associated with environmental responsibility. It was a staff expectation that pupils would recycle or reuse, whilst pupils themselves were generally confident of their ability to perform the tasks. Although this suggested that the pupils viewed themselves (and were viewed by staff) as competent and knowledgeable enough to carry out the actions of a sustainable practice, low-level involvement in making changes was standard for many of these pupils. Yet, the Eco-Schools ethos expects pupils to be empowered and lead actions (Eco-Schools, no date, a) and so it would be fair to suggest that pupils should be offered the opportunity to genuinely participate. Using Hart's Ladder of Participation as a guide (Hart, 1992) this could mean they are assigned meaningful roles and are informed of the reasoning behind them (rung 4) or the Eco-Committee (as representatives of their peers) could initiate and direct actions (rung 7) whilst being

facilitated in the administration of tasks by adults. However, unless pupils understand the purpose behind the performance of the tasks, their actions could be regarded as non-participatory and ineffective methods of gaining insight into the process of making changes (Hart, 1992). Although it was evident that pupils understood the purpose of some actions (recycling, use of standby mode), it was clear that pupils were not fully informed of the reasoning behind others (Walk to School initiative, use of reusable water bottles). Despite the ethos of the school, this range suggests participatory and non-participatory actions were taking place. In addition, because light green activities tend to require minimal changes to lifestyle to achieve them (Zsóka et al., 2013), they may be viewed supportively by both staff and pupils. As a result of this positive emotional response, the actions would be repeated, together with the associated application of know-how and use of recycling amenities (Delaney and Fam, 2015, p. 183). Having said this, these narrow opportunities for pupils to develop their understanding of environmental responsibility in school potentially limited the pupils' understanding and awareness of sustainability.

Assumptions had been made regarding pupil understanding of the reasoning behind the provision and use of newly installed taps. It was expected that pupils had developed their knowledge of water conservation simply by making use of improved tap technology. That is, not wasting water when washing hands was viewed as praiseworthy, but an assumption had been made that the provision of self-closing taps equated to an understanding or appreciation of water conservation. The belief here was that sustainable practice (conserving water whilst washing hands) would take place given the appropriate facilities (materials) and an awareness of how to operate the taps (competency). Although handwashing had taken place and practitioners had used the new taps, it was more likely that the meaning behind the practice had simply been attributed to the need to wash hands, rather than to sustainably use water (Delaney and Fam, 2015, Gifford and Nilsson, 2014). In this case, it was evident that there was a missed opportunity to reflect on a practice and consider whether pupils recognised the meaning behind it.

(ii) Terminology

Understanding the vocabulary associated with sustainability can be problematic and words such as "waste" may mean different things to different people, especially if pupils have been basing their ideas on "everyday" experiences or had yet to be introduced formally to the concepts (Kruger and Summers, 2000). Additionally, staff may only have a partial understanding of environmental education (Chatzifotiou, 2006) and so may have a limited awareness of the intricacies of processes such as recycling, reuse or composting. However, if being "aware" involves thinking about something that is perceived to be "usual" (Müller, 2007), then staff use of the words "rubbish" to describe used paper

and “scrap paper” to describe paper collected for reuse would not necessarily promote a positive view of the concept of environmental responsibility (Aarnio-Linnanvuori, 2019) or be conducive for the development of accurate sustainability language. In fact, previous research has determined that teachers have the capability to shape the environmental attitudes and behaviours of pupils especially if schools incorporate sustainability in the curriculum and everyday school life (Lukman et al., 2013). Furthermore, it almost goes without saying that a careful and considered choice of words is critical for the development of understanding. But in a school setting, with the attendant concepts of power, interactions, resources and infrastructure, the provision of accurate and reliable information is particularly important, especially when tackling complex interpretations of sustainability in an effort to develop an understanding of environmental responsibility (Yildez et al., 2017).

(iii) Use of sponsored materials

In order to develop pupils’ understanding, the process of teaching and learning is supported and facilitated by the use of an array of materials. Naturally, the materials required to resource the practices of environmental awareness and responsibility need to be effective and worth investing in. It was observed that materials produced by a large supermarket retailer were used in class to support the examination of the properties of plastic. Schools have limited budgets and so the draw of cheap or free teaching resources is understandable. However, the use of materials sponsored by private companies has been questioned by Huckle (2013). That is, the research includes a focus on Eco-Schools and the perceived influence of corporations on education, whereby a brand becomes associated with a cause, i.e. sustainability. The corporate provision of school resources, from booklets to computers, Huckle suggests, can limit the understanding of the “bigger picture” of sustainability. Although it is suggested that staff are free to amend any lesson plans provided by corporate sponsors, the pupil materials (booklets) observed being used to investigate the properties of plastic, were clearly emblazoned with a recognisable logo. Unless the teacher was prepared to make a concerted effort to encourage debate regarding environmental issues and the use of such resources, there may have been a possibility that pupils would be restricted to primarily associating efforts to tackle plastic pollution with the supermarket retailer.

A sponsor was also involved in the provision of drinking water in the classroom. Pupils had been encouraged to supply their own reusable plastic water bottles, rather than bringing single-use plastic bottles to school. Primarily, it seemed that the school encouraged the provision of bottles to ensure pupils were hydrated, as indicated by the provision of a water cooler in the classroom. Due to the prominent positioning of the company’s logo and associated information, it was also apparent that the suppliers of this facility made charitable donations in response to the school installing the product

(see earlier reference to sponsors, Huckle, 2013). Given the prominent position of the water cooler in the classroom and its connection with hydration and, to a lesser extent, efforts to reduce plastic waste, it is likely the logo would be recognisable to pupils. Perhaps almost by default, it also would be associated with efforts made to promote sustainability. In which case, it could be argued that the use of sponsored materials encouraged a bias towards certain supermarkets or manufacturers based largely on their use of logos and their perceived prominence as sustainable operators.

(iv) Making a difference

Although staff and pupils believed they were supporting environmental responsibility by performing sustainable consumption practices in school, some individuals felt that they were powerless to reinforce it. The belief that there is little that can be done to make a difference to events, such as conserving energy in school, has been termed an individual's "locus of control" (Fielding and Head 2012, Mead et al., 2012). This belief served to restrict the sustainable actions of staff who were aware of the difficulties arising from the orientation of classrooms within the school building and the maintenance of a comfortable working temperature. In fact, there was an acceptance that the heating system was the primary cause of the issue rather than the orientation of the building itself. Furthermore, staff felt changes were beyond their control. Staff identified the conflict between the need to support learning experiences and that of the design of the classroom which was viewed as incompatible with those needs. That is, the curriculum requirement to ensure continuous outdoor provision limited efforts to conserve heat energy due to the outdoor learning area being directly accessed via an adjoining classroom door. This feeling of being torn between issues (or practices), together with a belief that there was little that they could do to change the outcome, suggested a sense of powerlessness. This was consistent with Fielding and Head's study which revealed many adolescents need help recognising that they can make a difference regarding climate change (2012) and perhaps this was true of staff who faced making decisions and choices between sustainable actions, seemingly insurmountable building design issues and curriculum pressures. Indeed, it was likely that retrospective alterations to mitigate energy loss would have been excessive in an older building. Whereas a newly built school that had incorporated energy efficiency into the design and considered the orientation of the building (Marsden, 2007) would aim to limit problematic heating issues at the outset. This dilemma had potentially influenced practices taking place in school, so that the practice of outdoor learning provision had impacted on the practice of conserving heat energy (Vare, 2020).

(v) Influence of Roman Catholic character of the school

Staff and pupils demonstrated their willingness to repeat environmentally responsible routines and procedures. There was a belief in the value of energy conservation and a reduction in waste, in addition to a general compliance to perform given tasks. However, their understanding of sustainable practices was also shaped by the Catholic character of the school. Indeed, the school leadership perceived the collective undertaking of sustainable practice as an implicit understanding. This thinking was largely due to the guiding Catholic principles of the school (Gifford and Nilsson, 2014) and precipitated by the Papal encyclical, *Laudato Si*, which urged Catholics to care for people and the environment in a bid to ensure a sustainable future. As a result, the religious character of the school, with its encompassing emotional and cultural meaning, was felt (by some) to be sufficient to motivate action and facilitate the reproduction of sustainable practices.

Sub-Theme 1B: Understanding the practice of environmental responsibility

(i) Meaning

By examining the elements that form a practice, rather than focusing wholly on the activities within it, a breadth of understanding can be gained about the reasoning, knowledge and resources involved in that practice. This can help to clarify what individuals believe, how they interact with others and why they perform routines associated with a given practice (Hargreaves, 2011). As Hargreaves notes, these points may go unnoticed if there is undue focus on an individual's attitudes or values. For example, several pupils reasoned that their primary motivation for performing environmentally responsible actions was to conserve energy. Whereas another pupil respondent believed their application of energy-saving modes for computers was determined by a need to save time during the day's busy timetabling of classes. Reasoning based on time-efficiency is a familiar aspect of everyday routines, but the reasoning offered by a staff member for using the staffroom dishwasher is less common, i.e. the lack of a plug for the sink. As these examples show, it is fair to suggest that pupils and staff tended to be mindful of the value of energy and resources. Indeed, it seems evident that the meaning behind the practices included what might be considered environmental and non-environmental factors (Gifford and Nilsson, 2014). Arguably, this is understandable as there are likely to be several reasons for carrying out an action and some of these may be contradictory in nature. Staff faced a dilemma when choosing between saving time and preparing a recyclable resource (Vare, 2020). That is, it transpired that the thinking behind the creation of a reusable resource (lettering for inclusion in a classroom display) focused more on the time-saving aspect rather than sustainable re-use. This conflict was marked due to the use of plastic laminate which provided its long-lasting

properties but also made it unrecyclable. Then again, depending on the examples, they either show a level of “conscious reasoning” to limit their environmental impact (Kollmuss, 2002, Rioux, 2011, Howell, 2013) or reveal the influence of contextual factors on opportunities to perform sustainable behaviours (Poortinga, Steg and Vlek, 2004). These studies emphasise the individual’s role in making decisions about their own environmental behaviour, rather than considering the practice as a whole, whilst being mindful of the individual’s role within it (Røpke, 2009). Considering the Eco-Schools programme encourages collaborative and whole-school action, it is valuable to gain understanding of the everyday interactions and thoughts of staff and pupils as they practise environmental responsibility. However, it would be somewhat insensitive or rash to neglect consideration of individual viewpoints or contextual issues when attempting to gain a deeper understanding of the practices taking place in school.

Surprisingly, regarding the Eco-Schools programme staff and pupils made no reference to either their school’s Eco-Code (see Figure 5) or their Eco-School’s Action Plan. This was somewhat unexpected as the Code and Plan outline the school’s sustainable objectives, targets and planned actions, and thereby support their understanding and knowledge of sustainable practice. This suggested that these key components of the Eco-Schools programme drew negligible emotional response from practitioners. Although it was evident that many of the proposed actions were taking place in school, the Code and Plan themselves did not directly influence practice and instead routines were repeated due to the perceptions of resources and energy as finite entities.



Figure 5. Eco-Code

Furthermore, differing perceptions can lead to a range of meanings behind practices. As an example, there was an emphasis on the reuse of water bottles and a move away from a dependence on single-use plastic bottles in order to reduce the amount of plastic waste in school (see Figure 6).



Figure 6. Water bottles in tray

Although pupils practised the routine re-use of water bottles, the reasoning behind the procedure was not referenced by pupils and it was unlikely that sustainability was the only or central motivation for refilling their bottles. In fact, younger pupils logically reasoned that they refilled their bottle when they felt thirsty, therefore citing hydration as the thinking behind the practice. This differed from the meaning offered by staff which centred on environmental reasoning, e.g. to reduce the number of disposable plastic bottles. The differing perceptions influenced the meaning behind the practice, yet the element of competency (skills of when and how to refill) and materials (reusable water bottle and water cooler) remained the same.

(ii) Competency and materials

Within a practice there are a range of understandings, differing levels of motivation and a variety of skills or knowledge needed to carry out procedures and routines. These shared but differentiated elements direct behaviour, whilst the repetition of routines enables the practice to continue (Warde, 2005). Although the meanings behind a practice influence its performance, the everyday sustainable actions taking place in school can change as practitioners vary the way they use the associated facilities and resources (materials). By considering these competencies and materials, it is possible to gain insight into how pupils and staff manage to shape the practices. That is, the collection of paper for recycling or for reuse was considered to be a mundane, commonplace action and it was taken for granted that terminology used to describe the trays containing paper (“scrap paper” and “scrap paper tray”) would be implicitly understood without need for further explanation. In fact, actions such as switching off a light and recycling or reuse of paper were viewed by pupils and staff as habits because they did not require much, if any conscious thought (Warde, 2005). These actions were considered to be part of everyday life throughout the school, even if they were not always consistently performed. Indeed, it was clear that staff and pupils had noticed differing procedures taking place at times and in itself this suggested varying degrees of meaning or competency attributed to the practice. However, the findings show that, on occasions, the routine action of switching off a light differed markedly from the norm, which indicated one practice in conflict with another practice. That is, it was known that

when pupils and staff attended church, the lights remained switched on in an unoccupied room for the duration of their visit to church. Despite regularly demonstrating the skills and knowledge required to perform the routine, it was clear that although the competency and materials of practitioners had remained the same, a new practice had emerged. Whether this was influenced by the duration of time spent away from the classroom is unclear. Nevertheless, it would seem that the reasoning for saving energy had changed, despite a willingness to practise energy conservation at other times. By considering the origins of the meaning behind the new practice, this would help to understand why the practice had changed (Delaney and Fam, 2015). It is also unclear what had changed the perceptions of practitioners and their thinking towards energy conservation, but it was noticeable that the duration of time a room remained unoccupied was a factor. In which case, the emotional response to energy had undergone a shift in the way it was perceived, and in turn this informed the resulting practice, e.g. a reduced desire to save energy (Delaney and Fam, 2015).

Alternatively, if this example is viewed as individuals performing a bad habit that needed to be broken and a new, sustainable habit formed in its place, then this would rely on individuals being persuaded to change their behaviour. Indeed, studies by Kollmuss and Agyeman (2002), Dahlstrand and Biel (1997) and Lancken et al., (1994), amongst others, examine the role of habits in developing environmentally responsible behaviour. However, it is argued that by investigating how habits or *“frequent and persistent practice”* (Shove, 2009, p. 3) are formed, a greater breadth of understanding of the practice is possible. In which case, it would be of value to ascertain why leaving a light on when a room is empty for a given period of time, had developed into a habit, and how this practice could be changed given the *“stubbornness of habits”* (Sahakian and Wilhite, 2013, p. 28).

Instead, it could be suggested that sustainable consumption practices had started to “lapse” because the school had received its Eco-School status and as a result, the pressure to overtly demonstrate sustainable practice had reduced. This had influenced a change in practice as the meaning behind the actions had altered. A study regarding environmental education programmes and the maintenance of sustainable activity, explored the commitment of accredited schools following the achievement of their award (Goldman et al., 2018). The authors noted *“a ‘stagnation’ of environmental activity”* (ibid. p. 1308) in accredited *“Green-schools”* which contrasted to the dedication of schools (to practise sustainability) which were in the process of seeking their award. This was in accord with the experience of the main study school which had gained a Bronze Eco-Schools award a number of years earlier and had expressed an interest in pursuing a Silver award. However, evidence indicated that efforts to gain a Silver award had lessened and instead there was a determination to practise sustainability guided by religion.

Bearing in mind that switching off a light is an easily achieved action, and minimal know-how or competency is required to perform it, then it follows that if pupils and staff are restricted to performing this type of action, their level of understanding of environmental responsibility would potentially remain limited. In fact, it has been suggested that valuing direct actions such as recycling, serves to limit more ambitious indirect actions (such as writing a letter of protest) which develop the skills of critical thinking and environmental competency (Courtenay-Hall and Rogers, 2002). Moreover, since it seemed evident that pupils were viewed as competent contributors to the practices of environmental responsibility in school, the examples of passive actions raised questions about agency, participation and the extent to which they were given genuine occasions to develop their understanding of environmental issues and sustainable living (see Theme 4 for further discussion).

Theme 2: Approaches used to develop environmental responsibility

Understandably, in order to examine the influence of the approaches used to develop environmental awareness, initially it is necessary to consider the approaches or methods in question. Consequently, the main findings from the theme of *“Approaches used to develop environmental responsibility”* are discussed in the following section. These findings outline the methods used to develop the practice of environmental awareness and responsibility. That is, it was ascertained that modelling and observation of sustainable actions facilitated the performance of routines and procedures, whereas the cultural meaning of a Catholic community initiative helped practitioners to derive internal rewards. For some, the emotional meaning behind the attainment of an Eco-Schools award influenced their willingness to engage in the practices. But for others, the repetition of actions was viewed as an obligation or duty.

This section is followed by the theme *“Outcomes of approaches used to develop environmental responsibility”* which includes the discussion of findings regarding varying levels of participation and motivation, as well as an awareness and acceptance of a range of responses and competencies.

Sub-theme 2A: Teacher-directed pupil participation

The Eco-Schools programme emphasises the importance of actively involving the whole school community in the development of responsible attitudes and behaviour. It is expected that a combination of action and learning will develop environmental awareness and action (Eco-Schools, 2019c) and so alongside planned actions are curriculum links to environmental topics. One topic, water conservation, was integrated into the R.E. planning, whilst the youngest pupils were encouraged to develop their language skills by using terminology related to sustainability, e.g. recycling. One pupil

recollected some details pertaining to the greenhouse effect which they recalled from a topic taught the previous year. Clearly the use of the curriculum to impart knowledge was an area where teachers directed the learning. Similarly, teachers established recycling and reuse routines in the classroom. Pupils were expected to routinely use the excess printed copies or photocopies (“scrap paper”) produced by staff or collect paper at the end of a lesson in preparation for recycling. It was unclear whether these teacher-directed approaches to developing sustainable behaviour facilitated an understanding of environmental issues or simply provided a limited level of knowledge about the issues. In fact, the use of an anthropocentric approach, whereby the focus is on the use of natural resources by humans, suggested that pupils would gain no more than an introduction to sustainable behaviour (Boeve-de Pauw and Van Petegem, 2013a). This perspective favours an understanding of the human use of natural resources such as water and energy. Yet it has been concluded that this predominantly human-centred approach has little impact on fostering environmental behaviour, a key aim of environmental education. Moreover, a report by the school inspection service Ofsted (2008) recommended that pupils should be given opportunities to practise sustainable behaviours and ideally this would form part of the daily life in school. Although it was not specified what this might entail, it could be argued that the familiar routine of paper recycling and reuse corresponded with the advice from Ofsted. Again, it is questionable whether such an approach would develop environmental behaviour to any noticeable degree, largely due to its focus on human use of resources. Instead, it is recommended that a biocentric approach which encourages an understanding of humans as part of the natural world, is utilised (Boeve-de Pauw and Van Petegem, 2013a). Additionally, it was evident that there was an implicit expectation that staff and pupils would recycle and reuse resources, especially given the provision of facilities in key areas of the school. But this belief is problematic for two reasons. Firstly, this assumes that by supplying appropriate facilities, this will ensure that an individual then gains or demonstrates favourable attitudes towards environmental responsibility and consequently, they will choose to change their behaviour. This view supposes that when an individual possesses positive environmental attitudes, they will decide to behave in a sustainable manner. This approach to environmental education has been questioned because it fails to take into account the hindrances, beliefs and influences that impact on the everyday social practices of individuals (Shove, 2010). The second reason why it is problematic to believe that the provision of facilities will naturally lead to their uptake, is the need for a practice to contain elements of meaning and competency. These elements must combine with the materials or facilities and resources appropriate to repeat the practice (Hargreaves, 2011). Therefore, although it may seem logical to associate the provision of facilities with the performance of procedures, it is necessary to also recognise the importance of the meaning behind a practice (Delaney and Fam, 2015).

Pupils were directed by their teacher to perform other sustainable actions, such as adjusting the heating control (which was considered to be a norm by pupils) or placing computers into energy saving modes (a responsibility delegated to certain pupils by their teacher). Clearly pupils possessed the skills to perform these procedures, but it seemed that they were obliged to carry out the tasks as a result of teacher-direction.

Sub-theme 2B: Observation and modelling

Equally, switching off lights was considered by both staff and pupils to be a duty and pupils were aware of being observed by their peers as they performed this action. Although it was unclear if these pupils viewed themselves as a role model to their peers, staff believed the observation of the actions of light monitors or Eco-Committee members prompted pupils to act accordingly, more so than observing their teacher. Yet, it has been stated that the social power of the individual modelling a behaviour can serve to influence the observer's decision to imitate (Freyer and Klausmeier, 1972). Indeed, this is consistent with the views expressed by pupils who believed that observed actions modelled by their teacher are worthy of their imitation. By the same token, staff considered modelling of behaviour as an ideal method to enable pupils to watch a valued action taking place. According to Bandura's theory regarding imitation, the observed learned behaviour could then be replicated by the pupils (1977).

Sub-theme 2C: Incentives, rewards and habits

In addition, incentives and rewards were used to encourage the development of environmentally responsible behaviour. It is worth noting that the Eco-Schools programme is also an award scheme whereby the achievements of participating schools are rewarded with Bronze, Silver or Green Flag status. Accordingly, there was some pupil awareness of the rewards-based nature of the initiative and for some, progression towards the achievement of the next award was viewed as the primary stimulus to reduce the school's environmental impact. However, it was unclear if pupils and staff were largely motivated by the opportunity to compete with other Eco-Schools or to simply become more sustainable or both. Additional schemes had been introduced which offered incentives and rewards for sustainable actions such as walking to school for a week rather than being driven, whereby participating pupils were rewarded with stickers (*Living Streets*, no date). Observations showed a prominently positioned wall chart in the classroom which had been used to log their journeys each day. When asked to explain the meaning of the wallchart, a pupil explained that walking led to stickers. Naturally, there would be several benefits associated with walking, including those related to health and the environment, but it is understandable that tangible results such as stickers and badges would

be viewed as an attractive feature of the scheme. Nevertheless, although such incentives are appealing, it is worth noting that the use of awards as a stimulus or motivation to act sustainably tend to rely on persuading individuals to change their behaviour, rather than examining the potential changes that can be made to a practice, how these will make a difference and what will be the meaning behind them (Delaney and Fam, 2015). To support the continuation of practices related to sustainable travel, ideally they must be underpinned by positive meaning or reasoning, e.g. the potential health benefits of walking to school, but it is necessary to understand the effects on local traffic congestion or recognise the global implications of using more sustainable travel options. Moreover, any new travel habits formed during the scheme would be likely to revert to former habits after the scheme (and its associated rewards) came to an end (Walker and Verplanken, 2015). Therefore, a combination of elements would be required to ensure practitioners were willing to repeat the practices of more sustainable school commutes: a positive emotional response, plus the resources, equipment and physical skills to perform it, together with a shift from external to internal motivation.

Sub-theme 2D: Using a religion-based approach

Catholic identity was evident throughout the school, and it was apparent that there was a commitment to imbue the Catholic teachings into many areas of school life, including the approach to developing an understanding of sustainability. In particular, the ideas of stewardship, duty and responsibility were used by the school to foster an awareness of environmental responsibility. As a Catholic school, it was understandable that R.E. would be a central feature that contributes to the ethos of the school and as expected, the findings demonstrated that R.E. was used to deliver topics related to sustainability, e.g. water use. By drawing on the belief of Catholic duty and responsibility, it was likely that cultural meaning or thinking lay behind much of the sustainable practice in school and served to influence the practices of energy conservation and waste reduction. This, and the other areas discussed in Theme 2, are considered in the following section.

Theme 3: Outcomes of approaches used to develop environmental responsibility

The use of curriculum links, rewards, routines and observation provided opportunities for staff and pupils to become aware of environmental responsibility and to perform sustainable actions. These approaches enabled the implementation of the Eco-Schools programme and its aims, but to what extent they facilitated a whole-school effort or how they influenced the reasoning behind sustainable actions, is discussed in the following sub-sections organised under the theme of, *Outcomes of approaches used to develop environmental responsibility*. In addition, the consistency of their usage is

debated, alongside the differentiation within them and how effectively they supported the development of environmental awareness.

Sub-theme 3A: Holistic approach but not a whole-school response

The Eco-Schools programme emphasises a whole-school, holistic approach to developing environmentally responsible behaviour and advancing environmental awareness. The method goes beyond teaching environmental issues as part of the curriculum (Eco-Schools, no date, a) and aims to link processes to ensure sustainability is viewed as a key part of the school's ethos (Lewis, 2012). (This and other elements of the Eco-Schools ethos will be discussed in more detail during the final section of this chapter.) So, it is somewhat surprising that the programme, although adopted by the school, was rarely referenced by respondents and some of its elements were apparently unfamiliar to them. This suggests that although certain routines and procedures associated with the programme were recognised, the meaning of the programme itself had created a limited, or perhaps negative, emotional response from individuals. Over time, this would have led to changes within practices or to the formation of new practices, ones which were not necessarily influenced by the Eco-Schools programme (Delaney and Fam, 2015).

Nevertheless, pupils were motivated by the work of the Eco-Committee and by the prospect of moving to the next level of the Eco-Schools programme. Whereas staff were aware of the actions directed by members of the Eco-Committee, in addition to the Committee's role of keeping staff, pupils and the wider community informed of objectives and progress. Although it is debatable whether the Eco-Committee acted as both the primary motivation and source of information needed for the programme to be put into practice (Rickinson, Hall and Reid, 2016), the findings clearly show that recycling routines had been established, the curriculum was being used to develop knowledge and good practice was regularly modelled. In other words, staff were using the appropriate resources (materials), together with their know-how (competency) to engage in sustainable practices, and it also seems reasonable to suggest that there was some belief in the feasibility of the Eco-Committee targets.

Further evidence demonstrated that a holistic approach to sustainability was in progress. For example, a non-teaching member of staff made a point of stating that the school's recycling facilities were shared with the kitchen staff which indicated a collaborative approach to recycling that encompassed the range of staff and sectors in the school. Furthermore, infrastructure had been changed to include the use of energy-saving lighting and water-conserving taps, together with the provision of facilities throughout the school to collect used paper and batteries. Ideally, a holistic approach would have

embedded sustainable behaviour into the daily life in school. In fact, according to research by Winter, schools have the capacity to focus on incorporating sustainable behaviours into their everyday life and this, the author argues, is preferable to focusing on somewhat dull explanations of environmental issues (2008). To a degree, sustainable practice was evident throughout the school, and respondents were confident that the facilities were used and procedures for recycling were routinely taking place and had been incorporated into everyday school life. In addition, staff felt pupils were proficient or had the competency to perform such sustainable actions. Moreover, they were confident that running taps and unused lights would be turned off because they believed pupils accepted responsibility for ensuring these actions took place. This indicated that despite the whole-school approach to sustainability, there was an expectation from staff that pupils would dutifully perform the actions. Such social interactions between staff and pupils served to shape practices and although acting as individuals capable of carrying out these practices, pupils were not necessarily viewed as agents of change, by either adults or children.

Sub-theme 3B: Differing perceptions of actions

Overall, it was apparent that the materials needed to perform the practices (infrastructure, equipment), the competency of staff and pupils to facilitate the practices (knowledge and awareness of how to use facilities) and the meaning (ideas behind the need to conserve resources) were in place and enabled environmentally responsible actions to take place. However, it was likely that differing perceptions of finite resources (namely energy, water, and paper) had led to a range of meanings and in turn, these had influenced practice (Delaney and Fam, 2015). In fact, despite feeling that concerted efforts had been made, staff were also aware of inconsistencies in the actions of their colleagues, such as the varying performance of routines. Similarly, in spite of having confidence in their own contributions to multi-step classroom recycling procedures, pupils were aware of their own inconsistent behaviours and that of peers and staff. At times, these inconsistencies were excused or tolerated by staff and pupils. Conversely, they were viewed by others as the incomplete execution of responsibilities. However, it was unclear to what extent this acceptance was due to a limited appreciation or understanding of the impact of environmental actions (Short, 2009) or if it was considered acceptable to make occasional lapses if this was offset by more consistent actions at other times. Indeed, perhaps it could be considered to be human nature to deviate from routines at times, and this may include routines related to sustainability such as recycling, composting food waste and reducing consumption in general. There may be no reason other than an unwillingness to make the effort. But whatever the reason, it was clear that practitioners had adapted their performance of environmentally responsible routines, and this was likely to have been the result of their differentiated

views of sustainability. In fact, the findings provided an illustration of a noticeably divergent belief. That is, the example involved a member of staff who was unacquainted with the school's commitment to water conservation and demonstrated a sporadic approach to energy conservation. This served as a clear example of the connected practices and interactions taking place in the school and suggested that the meaning behind their practice conflicted with that of other staff and pupils. Yet, as with other staff, the respondent was conscious of their inconsistent behaviour and recognised that improvements could be made. It was evident that maintaining or developing a consistent whole-school approach to practising sustainability had become problematic when energy conservation was perceived as a separate and secondary concern by a staff member. Furthermore, it seemed apparent that practices needed to change in order to engage practitioners and ensure the reproduction of the routines and procedures.

By perceiving forms of waste as attributable to either pupils or staff (e.g. pupils viewed as responsible for wasted consumables and water, whereas staff generally wasted energy), this indicated that staff were not only attributing blame, but were also aware of conflicting practices. This was exemplified by a staff respondent who suggested that an energy-saving campaign was not wholly successful due to its timing. Although this response identified practical issues, e.g. a lack of time as a hindrance to performing energy conservation actions (Blake, 1999, cited in Fielding and Head, 2012), it was likely that the meaning attached to the campaign failed to produce a positive experience that practitioners were keen to repeat (Delaney and Fam, 2015). Therefore, for the campaign to be viewed as "doable", elements of the practice would have needed to be addressed and adjusted.

Sub-theme 3C: Religion as a guiding method

Attempting to determine which key factors influence environmentally responsible behaviour is difficult, mainly due to the large number of possible factors and how they link or compete with each other. Possible influencing factors include religion and religious beliefs, but there are only limited and sometimes conflicting empirical studies available to clarify the situation (Gifford and Nilsson, 2014). Understandably, it is likely that religion would play a central role in guiding perceptions, policies and procedures in a school such as the main study school due to its Catholic character.

Since R.E. forms the core of the curriculum in a Catholic school, this provided a key opportunity to encourage understanding of the relationship between humans and nature and for pupils to develop the skills or competency to tackle environmental issues. However, for this to take place, the R.E. curriculum would need to ensure that the negative human impact of actions on the environment was understood, and that there was a willingness to take responsibility for these actions (Parker, 2017). A

belief in the responsibility of Christians to be entrusted with and to take care of nature is known as the principle of Stewardship. Evidently, this view supports environmentally responsible thinking and the ethos of the Eco-Schools programme. Unsurprisingly, there was evidence of this approach to sustainability in the school. In fact, it became clear that the religious character of the school had steered the curriculum to be amended to teach sustainability from a Catholic perspective (stewardship of creation). The change of priorities from the pupil-led Eco-Schools programme to an increased focus on a Catholic perspective did not aim to reduce the importance of sustainability, but it shifted the interest in environmental issues towards a religious underpinning. In itself this was not problematic, in so much as it was still envisioned to be a whole-school priority (Lewis, 2012). However, the shift entailed a re-writing of lesson planning to accommodate the change in focus and so the reward (or positive emotional meaning) was viewed from a religious perspective rather than from a tangible view, i.e. earning a Silver Eco-Schools rating. Importantly, the development of environmental responsibility remained largely intact and would continue to lie behind the practices. Having said this, by performing routines and procedures which support the principles of the Church, practitioners would be likely to derive internal rewards. In turn, rewards such as a feeling of satisfaction could be sufficient to lead a practitioner to repeat or commit to the reproduction of the actions, therefore ensuring the practice is continued (Warde, 2005). However, it is unclear to what extent this shift would impact on the empowerment of pupils to lead environmental changes.

It seemed that although the school leadership intended to support environmental education, the religious character of the school and the Catholic Church's associated guidance led to a reassessment of the school's approach to sustainability. By summarising the impact of human behaviour on the environment and advocating the need for a sustainable approach to care for the planet (common home), the *Laudato Si* encyclical (letter) from the Pope (Schneck, 2016) influenced school policy so that understanding environmental responsibility from a religious perspective was set to become an integral part of the curriculum. The school's commitment to tackling the environmental challenges set out in *Laudato Si* meant that the Eco-Schools programme was at best viewed as complementary to the guidance provided by the Church (Hitzhusen, 2006) or at worst relegated (Parker, 2017). However, it would be unfair to suggest that the school leadership had reduced its commitment to environmental education. To be more precise, there had been a whole-school shift towards the development of environmental awareness and responsibility from a religious perspective. To some extent, it seemed that in an effort to plan for changes to a curriculum that emphasised the religious character of the school, the Eco-Schools programme had been side-lined. Yet by retaining a focus on sustainability, the school leaders had avoided creating a gap between sustainable actions and environmental ethos (Kadji-Beltran, Zachariou and Stevenson, 2013). In actual fact, it could be argued that the Pope's

encyclical and the school's Eco-School status were simply factors that vied to influence the school's development of environmental responsibility and awareness.

Furthermore, the Forest School Programme which was being undertaken by the youngest pupils, complemented Laudato Si. In this programme, participants are encouraged to investigate their natural environment in a number of ways (activities led by qualified practitioners) and as a result, this first-hand experience is thought to boost their empathy towards their environment and their feelings of concern for it (Emmons, 1997, Owens, 2005). Given that the essence of Laudato Si is a discussion of the negative impact of humans on the environment and the subsequent need for environmental responsibility, it seems fair to suggest that the involvement of pupils in the Forest School Programme actively supported the encyclical's key message of "care for our common home".

Sub-theme 3D: Routines and practice

To incorporate sustainable behaviours into everyday classroom life, routines had been developed to manage and support the practices of reducing the use of resources and the conservation of energy. For such actions to be repeated, staff and pupils needed to be willing to perform them and this repetition depended on a number of elements. For instance, the practitioner may have gained a sense of fulfilment or belonging (positive emotional meaning) from performing the task and so would feel motivated to continue using the necessary facilities or technology and consequently, to regularly carry out the action (Kadibadiba, Roberts and Duncan, 2018). As an example, teachers regularly gathered used paper and their pupils readily reused it or collected paper at the end of lessons for recycling. These procedures seem reasonable in a busy classroom and were acknowledged and routinely performed by staff and pupils alike. However, much of the paper for re-use stemmed from staff printing surplus copies of worksheets destined to be used by pupils during the course of a lesson. This was a demonstration of a connection between practices, whereby the staff practice of forming the "scrap paper" was linked to the pupil practice of reusing this type of paper (Røpke, 2009). Additionally, it could be argued that staff continued this practice because it had become accepted as inevitable or "just in case" additional copies were required. Despite the somewhat wasteful aspect of the routine production of additional copies, it formed a key element in the multi-step process of reuse (and eventual recycling) of "scrap paper" by pupils. Indeed, a member of staff who had articulated their knowledge and understanding of environmental issues, described the routine production of surplus copies, but did not appear to view it negatively. However, they were eager to emphasise their own reuse of the paper when working with pupils, which indicated an awareness of the emotional meaning behind the practice of producing excess copies. The staff member potentially focused on the practice of reuse in order to lessen any feelings of regret for producing the paper in the first instance (Delaney

and Fam, 2015). Then again, it is possible that the production of excessive copies could be considered to have been a habit, and likely to continue unless the context changed (Knussen and Yale, 2008). This view relies on the association of actions with the attitudes of individuals, whereas alternatively, it may be construed as simply a problematic practice that has formed and continued (Shove, 2009). Indeed, such a problematic practice involved the laborious process of watering plants in the school grounds using water carried from a tap indoors ("School Grounds" is an Eco-Schools topic). To ease this process, water butts had been installed to collect rainwater and consequently the provision of this facility changed the practice. For the new practice to form, it was important that the facilities or materials (water butts) enabled a positive emotional response to the action of watering the plants. A negative response, such as the likely response to using an indoor tap to fill a watering can and then carrying this outdoors, would be likely to hinder the reproduction of the practice (Delaney and Fam, 2015). As the provision and uptake of water from a water butt can be considered to be a fairly straightforward task, this concurred with research which suggested individuals were more likely to engage with environmentally responsible actions if these were determined to be relatively easy to perform (Fielding and Head, 2012). In addition, the practice of using water butts reduced the consumption of mains water, but evidently the reasoning (and change in meaning) was influenced by practicalities rather than sustainability. This highlights the need for systems, policies or practices which take into account practicalities and sustainability, instead of one or the other. Specifically, there is a need for environmentally responsible practices and systems, which are also feasible and realistic, in order to tackle the effects of a changing climate.

Regarding energy conservation efforts, staff and pupils perceived the action of switching off a light that was no longer needed, as a beneficial habit. It seemed more likely they were describing a routine behaviour due to the conscious behavioural choice that was required to perform the action (Steg and Vlek, 2009). Nevertheless, it was agreed that it was not consistently applied and this was confirmed during observations. Given that the action was simple and easily achieved, pupils and staff excused lapses in the consistent application of the routine and did not offer reasons other than to suggest it was due to simply forgetting to perform the action. Within the overarching, whole-school approach, it is reasonable to expect some variation in perceptions, competency or methods. But it is possible that for some staff and pupils, the value of the practice had not been understood and so consistent repetition was not taking place (Warde, 2005). In addition, it could be argued that the existence of widely differing beliefs called into question the collective nature of the practice in the school and would eventually lead to changes within it as individuals responded to the routines and procedures, (Kadibadiba, Roberts and Duncan, 2018).

With regard to competency and the performance of routines and procedures, it is questionable whether the pupils were gaining the skills needed to tackle environmental issues and act as agents of change in the future. Having said this, it has been argued that pupils can gain positively from being involved in practically any form of environmental action. In fact, according to a study by Short, it is important to consider the impact of the action on environmental conditions, rather than simply evaluating the behaviour (Short, 2009). In other words, there is a need to look further than the impact of environmental education on behaviours and instead, to consider the environmental impact of the action. Although it is important to evaluate the effectiveness of outcomes of environmental education and then build on or make amendments as necessary, it is also vital that young people are equipped with the ability to bring about a scale of changes. This may vary from small, easily achieved actions to larger, more significant actions; for instance, changing their behaviour as consumers, critically questioning policies and strategies, leading or assisting in the restoration of mangroves and peatlands.

Sub-theme 3E: Observation of consistent and conflicting procedures

Sustainability can be modelled either intentionally or unintentionally, using methods such as role modelling or the provision of facilities (Higgs and McMillan, 2006). Understandably, modelling good practice that is likely to be observed by others, is a logical and commonplace occurrence in a school. During the course of the school day, examples of good practice involving technology and energy conservation are likely to have been observed by pupils and staff. This would involve individuals modelling environmentally responsible actions such as collecting paper for recycling, reusing paper, switching off lights or shutting down equipment, and in turn, many of these favourable behaviours would be observed. Bandura concluded that when actions are regularly performed by someone with power or with status, i.e. staff and members of the Eco-Committee, the observer is more likely to emulate the behaviour (1971). It can be reasoned that on account of unequal power relations, staff exercise power over pupils and this can influence student voice or similar participatory work (Robinson and Taylor, 2012). Yet members of the Eco-Committee were viewed by some of their peers as having a certain prestige or status too. In the school, it was evident that pupils had been exposed to planned and unintentional modelling of environmental actions, from peers and from staff, and so there is a likelihood that the observers would have been influenced to act accordingly. Furthermore, the importance of teachers modelling sustainable practice has been described by Higgs and McMillan (2006) who highlighted the need for consistency of modelling to ensure an effective outcome. This would be facilitated by a supportive school culture, including a belief in environmental responsibility. However, given the evident inconsistencies in the performance of routine sustainable actions, the extent to which observation of modelling effectively led to emulation, is debatable. Indeed, as

members of an Eco-School, it would be envisaged that staff would aim to consistently model sustainable actions, yet it was apparent that there were some differences in the interpretation of practices. The findings show that staff and pupils observed procedures that were at odds with the school ethos, including a disparity between the processes of separation applied to food, packaging and paper and contradictions associated with the annual provision of single-use resources and the daily recycling and reuse of paper. Certainly, there was evidence of staff performing actions associated with unsustainable practice, in addition to an unwillingness to model the conservation of energy. These examples indicate the presence of the differing ideas and beliefs which served to influence practice.

It is acknowledged that the cultural attitudes of adults to children can act as a constraint to enabling active pupil participation in decision-making about issues such as sustainability. Some educators have perceived pupils as unable to make decisions or join in discussions about sustainable actions, i.e. they were not viewed as capable of being active citizens (Aarnio-Linnanvuori, 2019). This can lead pupils to lack environmental competency; that is the skills and know-how needed to tackle environmental issues (Barratt Hacking, Barratt and Scott, 2007). Certainly, in the main study school, the practices of developing environmental awareness had not worked in favour of enabling the majority of pupils to move beyond acting as the practitioners of routines and procedures. So despite their intended central role in the Eco-Schools programme, it seemed pupils had few opportunities to voice their concerns, have them heard and to enable change. Moreover, it seemed that this contradiction had not been noted (Vare, 2020).

Theme 4: Influence of the Eco-Schools ethos

Within the context of this environmental education initiative, the previous themes have discussed pupil and staff perceptions of environmental responsibility and the outcomes of approaches used to develop environmental awareness. The following theme builds on this and discusses the main findings from *"Influence of the Eco-Schools ethos"* to explore the participatory and collective nature of the Eco-Schools programme.

The pupil-led Eco-Schools environmental education programme aims to use whole-school action to develop environmental awareness and behaviour change. At every stage, pupils are expected to be involved in both the decision-making process and actions, whilst staff are required to facilitate and support the initiative by becoming actively involved. An Eco-School would be expected to commit to supporting the empowerment of pupils to lead changes and develop environmental awareness (Eco-

Schools, no date, a). These elements of the Eco-Schools ethos are explored in the following sub-themes.

Sub-theme 4A: Pupil participation

The participatory approach of the Eco-Schools programme should offer opportunities for pupils, teaching and non-teaching staff and parents to become environmentally aware and develop a commitment to sustainable behaviour. It was evident that pupils did participate in various actions during the course of a school day. This included selected pupils who had been assigned responsibilities and applied a range of energy saving functions (computers and IWB) appropriate to the demands of the timetable. The pupils understood that the choices of modes or functions supported energy conservation, although it was debatable if they had been involved in deciding which of these functions to apply. Having said this, according to Hart's Ladder of Participation (1992) this level of assigned and informed involvement could be determined to offer a degree of participation. Moreover, if pupils had the opportunity or choice to provide further input, such as determining the most effective means to conserve energy in relation to computer and IWB, this would offer a higher level of participation. Despite pupils being allocated such "monitor" roles (selected pupils entrusted with staff-directed responsibilities), there was evidence that the role was valued by pupils as more than simply being of assistance to the teacher. For some, it was viewed as an opportunity to conserve energy which otherwise would have been wasted. This willingness to apply their skills and use the available computer settings to reduce energy consumption was a demonstration of pupils engaging in an environmentally responsible practice and acting as agents to make a positive change. Indeed, there were several instances of pupils demonstrating their ability to appreciate the relationship between the use of facilities, resources or technology and resulting environmental impact. By participating in an action with a positive environmental impact, this was likely to act as an impetus for further successes (Short, 2009). According to Short, if pupils are to gain the skills needed to become capable of tackling complex environmental issues, then such participatory behaviour must also be viewed in terms of its impact on environmental quality and not simply as a prescribed action that developed knowledge or environmental behaviour. Given the unequal power relations evident in schools, it is likely that the many actions are directed by staff and pupils accept them as teacher-directed instructions. Yet, it is also clear that pupils took their own responsibilities, and those of their peers, seriously. Despite this positive emotional response, they were expected to passively perform environmentally responsible actions when instructed by staff.

For evidence of best practice taking place, it is anticipated that pupils should routinely participate actively (Office for Standards in Education, Children's Services and Skills, 2008). Active participation

could be interpreted as having genuine opportunities to participate in the process of environmental decision-making. According to Hart's Ladder of Participation (1992), these opportunities to take part and make changes might include actions which are adult-initiated and decision-making is shared with children (ibid. p. 12). Moreover, a key aspect of genuine participation is motivation whereby a child feels inspired to develop their competences further due to a feeling of involvement (Hart, 1992, p. 5). With regard to routine participation in actions, it was evident that pupils acted as agents to continue the practices of environmental responsibility, in so much as they had the know-how to perform routines and procedures. However, it is unclear if they were motivated by this level of involvement to make further changes. It seemed that despite the intention of the Eco-Schools ethos to empower pupils, the dominance of adults in the school context (whereby staff held positions of greater authority and responsibility compared with pupils) eclipsed the views of pupils and contributed to a passive acceptance of routines and procedures (Robinson and Taylor, 2012). Perhaps with the exception of Eco-Committee members this meant that the remainder of pupils rarely had an opportunity to voice their ideas and concerns regarding sustainability or to expect their views to be listened to.

Sub-theme 4B: The Eco-Committee and pupils

As a participatory group, the Eco-Committee certainly offered a selection of pupils the opportunity to become involved in making decisions as stakeholders. This gave pupils a voice, as set out in Article 12 of the United Nations Convention on the Rights of the Child, (UNICEF, no date) and a chance to believe their views would be taken seriously by adults. Observations of a meeting of the Eco-Committee indicated potential opportunities for pupils to review the school's performance regarding sustainability goals and discuss future goals and actions. In fact, the meeting was largely concerned with the targeted reduction in energy, but the Committee's passive acceptance of outcomes and pre-determined initiatives suggested pupils had not influenced change. Additionally, it has been argued that undue focus on using a structure of "*representative structures of participation*" (Percy-Smith, 2010, p. 111) such as the use of delegated individuals to attend Eco-Committee meetings, can restrict involvement to a small number of pupils. Furthermore, it has also been argued by Percy-Smith (ibid.) that it is necessary for involvement throughout the process of decision-making to ensure active participation is maintained and pupils are empowered due to increased confidence in their ability to make changes. However, it seemed the Committee members were perceived as passive learners by the member of staff who facilitated the meeting and provided limited opportunities for pupils to lead, question or discuss ideas (Ahonen et al., 2014). Moreover, an imbalance of power relations, including my presence at the meeting, may have contributed to the limited dialogue taking place during the Eco-Committee meeting (Robinson and Taylor, 2012).

Given the opportunity, pupils demonstrated they were capable of providing their thoughts and opinions. Their views varied from acceptance to criticism of the school's everyday efforts to foster environmental awareness. Pupils regarded facilities, actions or resources as either worthless or as beneficial. On the one hand there was a belief that the Eco-Committee effectively informed and involved the whole school. This concurred with the expectations of the Eco-Schools programme whereby members of the school community ought to be informed of targets and outcomes of actions. Yet on the other hand, it seemed that efforts to develop environmental awareness and action were ineffectual. Furthermore, some pupils felt they could communicate with the Committee members, while others felt the Committee did not reflect their views. Whereas staff emphasised the communicator role of the Committee and regarded Eco-Committee members as transmitters of targets and outcomes, pupils viewed members of the School Council (elected to represent the views of pupils in order to improve their school) as communicators of information and as providers of opportunities for pupils to share ideas with their peers.

Clearly there were differing pupil assessments of the Eco-Committee as the delegated body intended to drive sustainable actions. To what extent pupils had been given the opportunity to voice their opinions regarding the effectiveness of the Eco-Committee or the implementation of the Eco-Schools programme is unclear. It is also unclear why viewpoints differed so markedly regarding the Committee. Perhaps the members were unprepared for the task of representing their peers or were unambitious regarding their targets. But it was evident that pupils' mixed feelings about the sustainability efforts of the school, including those of the Eco-Committee, signalled a need to consider how effectively the Eco-Schools programme facilitated the progress of environmental awareness and action, whilst empowering pupils to lead change. Bearing in mind that EE programmes aim to improve or develop the *"environmental literacy of participants"* (Stern, Powell and Hill, 2014, p. 581), then a successful programme should ensure participants are actively engaged in decision-making, actions and monitoring to support their capability to understand and tackle environmental issues (Short, 2009). Additionally, Cincera and Krajhanzl's study of the relationship between the Eco-Schools programme and the ability of pupils to tackle environmental issues (2013) proposed that a programme could be considered to be effective if pupils were able to actively participate in decision-making and make purposeful decisions. This level of pupil participation is thought to support their capacity to deal with the complexities of real-life situations. Yet it was evident that pupils were capable of evaluating decisions that had been made, rather than accepting them because they were "a class rule", i.e. taken at face value. In fact, it was apparent that some pupils had reservations about certain decisions that had been made. Pupils such as these who possessed the skills of critical thinking and were able to consider the reasoning behind decisions would be *"more willing to question environmental practices"*

in their school and suggest alternatives" (Owens, 2005, p. 327). Actively participating in the process of decision-making would therefore enable pupils to act as agents of change. But for this to take place, it is necessary for the capabilities of pupils to be recognised by both the pupils themselves and by staff who have the power to give pupils a voice.

Sub-theme 4C: The Eco-Committee and staff

Having said this, there was evidence of an appreciation of pupils' capabilities regarding environmental understanding and the ability to plan actions. The acknowledgement of the existence of the Eco-Committee's Action Plan by the school leadership demonstrated an awareness of the Eco-Committee's participation in the development of quantifiable goals. Importantly, the development of the Plan demonstrated pupil confidence in their ability to identify goals and lead actions. However, despite their good intentions in terms of pupil participation, some activities were restrictive. That is, aided by the site supervisor, a limited number of pupils from the Committee were involved in collecting litter from the school grounds. Although it is unclear why this task was restricted to a small number of pupil participants, research by Barratt Hacking, Barratt and Scott (2007) suggested that adults' concerns over safety issues curbed opportunities for children to learn about the environment. It is possible that concerns regarding hygiene may have played a part in limiting the number of pupils tasked to collect litter. But restricting the practice to involve a small number of supervised pupils represented a missed opportunity for more pupils to engage with the issue of litter in their local environment and beyond.

Pupils, and particularly those who were Eco-Committee members, were viewed by staff as reliable and dependable enforcers who urged and insisted on procedures being followed. It is noticeable that the staff emphasis is on pushing the application of procedures rather than the Committee members being viewed as competent delegates and skilled target-setters. For example, staff felt they provided the impetus for reinforcing energy conservation measures such as closing windows to reduce heat loss. Either the Eco-Committee spearheaded this drive or school finances were an influencing factor, or perhaps both. However, it is likely that this practice of conserving heat energy was influenced by budgetary concerns given that heating, lighting and ICT use the largest amounts of energy in schools (Harris, 2008, p. 7). Consequently, a reduction in energy use would equate to reduced bills for the school; the financial savings being highlighted as a benefit of the Programme (Eco-Schools Northern Ireland, 2019, p. 7).

It seemed that staff believed the Committee members influenced their peers to act in a similar manner, despite little evidence of other pupils suggesting this. Certainly, pupil observation of staff

performing sustainable behaviours has been found to encourage pupil emulation of such behaviours (Higgs and McMillan, 2006). Perhaps staff believed the same would be true of pupils whereby they emulated the actions of their peers, or more specifically, those of Committee members. Given that Frayer and Klausmeier concluded that the social power of a role model played a part in encouraging similar behaviours (1972), it seems reasonable to argue that the actions of a select group of pupil representatives (the Eco-Committee) may have been viewed by their peers as worth copying.

Additionally, staff were aware of the Eco-Committee providing feedback to pupils regarding the progress of targets and actions. Naturally, when the Committee members presented and communicated outcomes to peers and staff, this behaviour would be observed by fellow pupils. It would be a demonstration of pupils providing information to a mixed audience of adults and children and importantly, an illustration of their capability to perform this task. Although it is unclear to what extent the behaviour encouraged peers to emulate their actions (as envisaged by staff), it nevertheless was a plain display of agency and something of a departure from the demonstration of power relations found in a school. That is, due to staff holding the position of authority in school, this unequal pupil-teacher power relationship can limit the involvement and influence of pupils (their actions and voices) even in schools where pupils have been given opportunities to share their ideas and views (Robinson and Taylor, 2012). Furthermore, in the Eco-Schools context, the collective efforts of pupils and staff (a combination of the practices of teaching and learning) are required to develop the practices of environmental awareness and to facilitate and routinely perform actions (Røpke, 2009). By providing feedback to peers and staff, the Eco-Committee members were demonstrating their capability to act as agents to “carry” the practice of informing and communicating. They used the available facilities (materials) e.g. school assembly, to deliver their information, therefore demonstrating their communication skills and understanding of environmental issues (competency). In addition, by informing staff and peers of actions and their progress, the Committee members demonstrated a degree of participation in the process of developing environmental awareness. That is, according to the requirements of Hart’s Ladder of Participation (1992) they had demonstrated their understanding of the aims behind the actions, and they were performing a “meaningful” role as communicators of information (ibid. p. 11). This practice not only conveyed important information to pupils and staff, it also demonstrated pupils’ ability to genuinely participate and be agents of change.

Sub-theme 4D: Staff as facilitators

Staff are expected to facilitate collaboration and assistance skills by attending Eco-Committee meetings. Staff also incorporate the Eco-Schools programme into the curriculum and so naturally they work to integrate environmental topics into the teaching timetable. As a result, staff are considered

essential to the practices of developing sustainable learning and actions in the school and are expected to support pupils as they make decisions about the course of actions. There was certainly evidence of teaching and non-teaching staff taking part in sustainable actions, ranging from re-use of paper to the utilisation of the battery collection facilities. In addition, Eco-Committee members were accompanied by a non-teaching member of staff as they undertook regular readings of energy usage. By demonstrating how to effectively use the resulting data to raise awareness of environmentally responsible actions, the member of staff also confirmed their skills as a practitioner. That is, they possessed the know-how to recognise the purpose behind the pupils' action of regular meter-reading and how the collated data of metered usage resulted in the DEC displayed in school. By linking the action to the outcome, they recognised that the DEC could act as an impetus to reduce energy use. This concurred with research which advised understanding the data from DECs in order to make improvements or changes to factors which lead to increased energy consumption (Godoy-Shimizu et al., 2011). The member of staff was keen for the information displayed on the DEC to be shared, yet this had been limited to highlighting the data to visitors. It has been suggested however, that schools would benefit from sharing their DEC information with schools with similar features (location, age, size) in order to share ideas for reducing energy consumption (Dias Pereira et al., 2014). Instituting a scheme such as this would be dependent on time and expertise, as it would necessitate an understanding of how the data is formed and how this relates to energy use in the school. This would be in addition to involving a change to practice to ensure practitioners are willing and able to effectively disseminate the information.

Examples such as these of staff taking the principles of the Eco-Schools programme and applying them in an unobtrusive manner, provide an insight into the subtleties of the everyday school life. Whilst it is safe to say that staff were discreetly performing sustainable actions, it was still likely that their actions would have been observed by pupils. It does not necessarily follow that observation alone (without an explanation) would be sufficient for learning to take place or that pupils would view staff as their role models (Hutchings et al., 2008, Higgs and McMillan, 2006, Sanderse, 2013).

Sub-theme 4E: School leadership and financial savings

Perhaps understandably, the Eco-Schools programme relies on the support of the school leadership (Headteachers and Governors) to increase the effectiveness of the initiative. Headteachers are in a position to allocate budgets for training, resources and the development of projects, and so their support can not only enable a whole-school approach but can help to encourage an acceptance of changes to practice and to support the incorporation of sustainability into a busy timetable (Evans et al., 2012). For those schools wishing to implement the Eco-Schools programme it is suggested that

financial savings can be made as a result of targeted actions to improve energy efficiency (Eco-Schools Northern Ireland, 2019). Naturally, this would be likely to appeal to Headteachers who are faced with limited school budgets.

It was plain that difficult decisions were being faced when planning budgets and considering the sustainable efforts of the school. At times, there was scepticism regarding the likely monetary savings when weighed up against the initial investment in newer, more efficient technology. Even with access to government funding to assist the financial outlay, leadership remained uncertain of the benefits of installing more energy efficient lighting. This indicated that the meaning behind the proposed upgrade was ultimately perceived from a financial, rather than environmental, standpoint. Having said this, it was also evident that the Headteacher was keen to meet the challenge of tackling energy consumption to become a more sustainable school (Harris, 2008). It appeared the school leaders supported the overarching practice of developing a sustainable school, but they were duty-bound to evaluate the financial and environmental implications of agreeing to allocate funds to upgrade technology (the materials) needed to reduce energy consumption. With respect to new lighting technology, the practice of budgeting was clearly linked to the practice of reducing energy consumption. But by changing the way the latter practice was approached, e.g. with the installation of more efficient lighting rather than a reliance on switching off lighting (“conspicuous” actions), there was a change to the way the practitioners in the school experienced the practice of sustainable energy consumption (Hargreaves, 2011).

Summary

This chapter has discussed the research findings in relation to relevant literature and has demonstrated the contributions made by the research. The chapter was structured according to the central themes: *Pupil and staff understanding of environmental responsibility in school*, *Approaches used to develop environmental responsibility*, *Outcomes of approaches used to develop environmental responsibility*, *Influence of Eco-Schools ethos*, although inevitably there was some overlap and linkage between these themes.

Pupil and staff understanding of environmental responsibility in school focused on staff and pupil perceptions of waste and how they believe resource and energy consumption can be reduced. The study found that the expectations of staff regarding pupil participation, together with the power relations that exist between pupils and staff, can serve to restrict pupil involvement in environmental actions and limit their opportunities to become involved in more ambitious actions. Furthermore, although pupils are viewed as competent and knowledgeable practitioners of environmentally

responsible routines, they passively perform them. In addition, the Roman Catholic character of the school attributes emotional and cultural meaning to sustainable practices so that understanding environmental responsibility is perceived as a collective responsibility. However, differentiated meanings behind some practices has meant that practitioners can be faced with performing conflicting practices. It seems that perceptions vary regarding what constitutes environmental responsibility and this largely depends on the knowledge made available to individuals and how waste or levels of consumption are measured or quantified.

Approaches used to develop environmental responsibility considered the methods used by staff and pupils to provide opportunities and support for the development of environmental responsibility. For example, sustainable actions modelled and observed by staff, pupils and their peers, facilitated the repetition of routines and procedures. Teacher-directed approaches involved the use of the curriculum to impart knowledge and the delegation of pupils to place technology into energy-saving modes. On the other hand, the use of schemes involving incentives and rewards, tended to rely on persuading individuals to change their behaviour. Additionally, a religion-based approach drew on the school's Catholic ideas of stewardship, duty and responsibility and influenced sustainable practice in school.

Outcomes of approaches used to develop environmental responsibility developed the findings from the previous section and explored staff and pupil responses to the application of a range of methods. Regarding a whole-school, holistic approach to the development of environmentally responsible practices, the meaning behind the Eco-Schools programme had created a limited emotional response from staff and pupils. Furthermore, there was evidence of sustainable practices throughout the school and a confidence that procedures were routinely taking place. In fact, staff believed pupils were competent, practitioners who reliably performed the sustainable actions that had been incorporated into their everyday school life. Yet there was also evidence and awareness of the inconsistent performance of actions. This indicated that staff and pupils had adapted their performance of routines due to their differentiated views of sustainability. Moreover, regarding the use of routines, staff regularly produced and collected "scrap" paper and this practice was clearly linked to the practice of reuse, primarily by pupils. Additionally, it was evident that positive examples of sustainable practice were modelled and observed by staff and pupils. However, there was evidence of differentiated interpretation of practices and an unwillingness to model the conservation of energy. These differing, and in some cases conflicting, beliefs served to influence practices. Finally, with respect to religion as a guiding method, it was clear that the curriculum had been directed towards teaching sustainability from a Catholic perspective.

Influence of Eco-Schools ethos examined the impact of the ethos on the practice and perceptions of staff and pupils. Engagement in environmentally responsible practices gave pupils the opportunity to act as agents and make a positive change to energy or resource consumption. However, there were few genuine participatory occasions for pupils, possibly with the exception of the Eco-Committee, to become involved in collective decision-making regarding issues that affect them. Furthermore, differing pupil perceptions of the Eco-Committee indicated a need to review how effectively the Eco-Schools ethos enabled the empowerment of pupils and influenced the development of sustainable actions. After all, there was evidence of pupil misgivings and doubts about decisions that had been made. This demonstration of critical thinking and the ability to query the reasoning behind decisions, revealed the ability of pupils to actively engage in the process of decision-making. However, in the school setting the dominant role of staff and their expectations regarding pupil participation served to (intentionally or unintentionally) limit pupils' views and contributed to a passive acceptance and delivery of environmental actions. Regarding the role of staff, the school leadership made budgetary decisions based on environmental and financial reasoning. The practices of sustainable energy consumption and budgeting were interrelated so that changes made to one practice led to changes to the other.

The next chapter considers the main findings in relation to each of the key questions and demonstrates that these have been addressed by the study. The chapter also presents the implications of the research and recommendations for future practice, in addition to the study's limitations and ideas for future research.

Chapter 6

Conclusions

Introduction

The previous chapter was organised under four themes: *Pupil and staff understanding of environmental responsibility in school*, *Approaches used to develop environmental responsibility*, *Outcomes of approaches to develop environmental responsibility* and *Influence of the Eco-Schools ethos* and offered a discussion of the findings and what they mean, whilst drawing on existing research and the guiding theory.

This chapter provides a summary of the key findings which serve to illustrate the extent to which the research questions have been answered. It reviews the implications of the research, offers recommendations for future practice and is followed by limitations of the study and ideas for future research.

Within the context of environmental education and sustainability, the research investigated the practices of a behaviour-change initiative, specifically the Eco-Schools programme, which aimed to develop pupils' environmental awareness and responsibility. The main study school was an Eco-School which was Roman Catholic in character and located in a city in Lancashire.

The thesis aimed to investigate the environmental perceptions, beliefs and actions of staff and pupils in an Eco-School and to examine the influence of the Eco-Schools ethos on the beliefs and actions of staff and pupils. An examination of literature in the fields of sustainability and environmental education found that the Eco-Schools programme offered schools the opportunity to raise pupil awareness of environmental issues whilst empowering them to lead environmental changes. However, it was evident that views differed regarding the impact of the programme on both environmental change and pupils' preparedness to tackle environmental issues. Furthermore, there seemed to be a scarcity of literature regarding the environmental perceptions of pupils and the influence of religion on the implementation of EE programmes.

This study has demonstrated the value of applying social practice theory to the everyday practices of environmental sustainability in one Eco-School. Evidence from the study established that the school setting influenced pupil and staff understanding of environmental responsibility. The study also finds that the Catholic character of the school shaped the approach to tackling environmental issues and

competed with the Eco-Schools programme as the main means to develop sustainability. In addition, the findings showed that the Eco-Schools ethos influenced the nature of pupil participation in environmental decision-making and actions. There is also evidence that differing perceptions of issues and actions led to a range of meanings which informed practices and at times led to conflicting and complementary practices taking place.

These findings have implications for schools as they endeavour to develop pupils' understanding and ability to tackle environmental issues. Schools will need to adapt their thinking and enable pupils to genuinely lead the changes in consumption practices if pupils are to gain the necessary competencies and skills needed to adapt to the effects of climate change.

To ensure the findings from the analysis and discussion are clearly presented to the reader this chapter will firstly review the key findings in relation to the aims and appropriate literature. Secondly, there is a discussion of the implications of the study. Finally, there are ideas for further research which can build on the findings from this study.

Main findings in relation to the key questions

Within the aims of the study are several key questions. The following section considers the key findings in relation to each of these and demonstrates that each question was able to be addressed by the study and contributed to understanding.

The key questions were:

1. What constitutes "environmental responsibility" from the perspectives of pupils and staff?
2. How are environmentally responsible beliefs and actions manifested in the school space?
3. What are the main outcomes of approaches used to develop sustainability in school?
4. To what extent does the Eco-Schools ethos influence the actions and beliefs of staff and pupils?
5. How do the beliefs and actions of pupils compare with those of staff?

Understanding of environmental responsibility

The study indicated that pupils and staff are aware of actions that they can perform to reduce their consumption of energy and resources. However, the unequal power balance between pupils and staff serves to restrict pupil environmental actions and limits their opportunities to become involved in more significant actions (Ahonen et al., 2014, Aarnio-Linnanvuori, 2019). The school setting was identified as an influence on pupil and staff understanding of environmental responsibility. Although

pupils view themselves (and are viewed by staff) as competent and knowledgeable practitioners of sustainable procedures and routines (which they readily perform), there is little evidence of pupils actively involved in leading the formation of them. At times, it is clear that there can be a feeling of powerlessness in respect to being able to perform sustainable practices as staff face obstacles posed by building design and curriculum pressures (Fielding and Head, 2012). Furthermore, the Roman Catholic character of the school attributes emotional and cultural meaning to sustainable practice so that an understanding of environmental responsibility is viewed as a collective Catholic responsibility.

It was concluded that differing perceptions regarding reusable water bottles for example, influences the meanings behind practices. Indeed, there may be environmental and non-environmental factors and reasoning behind routines and procedures (Gifford and Nilsson, 2014) and this can mean practitioners are faced with performing conflicting practices (Vare, 2020).

Pupils and staff offered a range of thoughts and ideas related to sustainability and these, together with the skills necessary to undertake actions, enable the repetition of actions designed to support environmental responsibility. However, differentiated beliefs and understanding lead staff and pupils to shape practices by making adjustments to actions, including those previously considered to be habits (Warde, 2005).

The manifestation of environmentally responsible beliefs and actions in the school space

Throughout the study, there are instances of pupils and staff explaining their thoughts and points of view, discussing their own behaviour and that of others, and providing insight into their interactions and the environmentally responsible practices taking place in their school. Examples of good practice are described, with pupils and staff providing evidence of individuals, intentionally and unintentionally, modelling environmentally responsible actions, such as using facilities to collect paper for recycling, switching off lights or shutting down equipment (Higgs and McMillan, 2006).

The findings of the study suggest that a holistic approach to developing environmental awareness is in progress but has not fully embedded sustainable behaviour into the life of the school. Routines have been developed to incorporate sustainable behaviour into everyday classroom life, such as the reuse of paper. This practice involves paper that has been printed on one side but blank on the other. However, this practice is linked to its production (the result of habitually printing excess copies) and demonstrates the relationship between practices and also how difficult it can be to break habits in order to form a new practice (Sahakian and Wilhite, 2013). Indeed, the production of such “scrap

paper” for reuse could be considered to be a problematic practice that has formed and continues to be repeated (Shove, 2009).

Outcomes of approaches used to develop sustainability in school

A main outcome is the demonstration of staff and pupil competency to perform resource-recycling and energy-saving practices. They make use of the facilities and resources needed to repeat the practices’ procedures and routines and understand the reasoning behind them. However, pupils and staff are aware of their own inconsistent behaviours, as well as the actions of others, some of which are excused or accepted. For example, the creation of waste is perceived as attributable to pupils (water, consumables) and staff (energy). This finding indicates an awareness of conflicting practices taking place, in addition to a willingness to assign blame rather than to consider the reasoning behind the variations in ideas and reasoning (Warde, 2005). These differing meanings brought about changes to the practices as individuals responded to the routines and procedures within them (Kadibadiba, Roberts and Duncan, 2018).

When staff model sustainable behaviour, pupils determine their behaviour is worth emulating. This is likely to be due to staff having power or status (Bandura, 1971). Furthermore, staff believe that members of the Eco-Committee act as role models to their pupil peers. Additionally, consistency of modelling is required for effective outcomes (Higgs and McMillan, 2006) and there is evidence of varying actions from staff and pupils.

Influence of the Eco-Schools ethos on the actions and beliefs of staff and pupils

Although the development of environmental awareness and responsibility continues to be a whole-school focus, the findings show that guidance from the Catholic Church increasingly underpinned the approach to sustainability. This shift signals a change in focus from the pupil-led basis of the Eco-Schools programme to the Catholic principle of stewardship (Schneck, 2016). The findings indicate that a religious underpinning means practitioners are encouraged to perform energy-saving practices due to a sense of religious duty and responsibility, deriving internal rewards as a result and therefore ensuring the reproduction of the practices (Warde, 2005). However, this assumes that individuals are sufficiently invested in the Catholic doctrine to experience these internal rewards.

There is evidence of pupils valuing and performing their role as monitors (pupils specifically assigned by staff to carry out helpful tasks) and viewing this role as being of assistance to the teacher and also supporting efforts to conserve energy. Indeed, they are acting as agents to carry the practices of aiding energy efficiency (Røpke, 2009) as they use skills (competency) and technology (materials) to

accomplish routine actions. The Eco-Schools ethos expects pupils to be empowered and to lead changes to develop sustainable practice. Furthermore, UNICEF states that all children have a right to have a say in matters that affect them and their views must be taken seriously (UNICEF, no date). This level of involvement and participation would require pupils to be informed of the reasoning behind actions and to be consulted so that they can influence change. Ideally, pupils would have the opportunity to initiate and direct actions (Hart, 1992). However, with the exception of Eco-Committee members who have the opportunity to offer their voice and contributions to environmental decision-making, pupils continue to be largely involved in procedures ostensibly directed by staff. Whilst it is debatable whether participation in determining actions that matter to them would give pupils a genuine opportunity to make an impact on the unequal power relations in school (Robinson and Taylor, 2012), it can help to develop the skills and motivation necessary to become further involved in the process of making changes (Hart, 1992). This process requires the support of staff to facilitate and support pupils' decisions and actions. In addition, the empowerment of pupils to lead changes requires staff to recognise their competencies and be willing to encourage a collaborative approach to making changes (Percy-Smith, 2010).

When pupils are given the opportunity to share their thoughts about the Eco-Committee, it is clear that they have mixed feelings about their representatives, ranging from considering them effective communicators of information to regarding them as unreliable and ineffectual. Within the context of the Eco-Schools programme, the Committee's key role is to drive sustainable actions. Therefore, the varied responses to these actions (and to the Committee in particular) signals a need to assess the effectiveness of the Eco-Schools programme at facilitating sustainable practices whilst empowering pupils to lead change. Given that successful environmental education programmes aim to develop environmental literacy rather than simply extending the environmental knowledge of participants (Stern, Powell and Hill, 2014), then the active participation of pupils in purposeful decision-making is critical (Cincera and Krajhanzl, 2013). The findings demonstrate that pupils are capable of evaluating decisions that have already been made rather than accepting them as "class rules" and therefore indicate they have the skills of critical thinking necessary to question practices in their school (Owens, 2005). In order for these skills to be developed in preparation for tackling more significant environmental issues in the future, it is necessary for pupils and staff to recognise and nurture these capabilities.

There is evidence of an appreciation of pupil capabilities to plan actions and develop quantifiable targets. Yet, some activities (monitoring school energy-use, litter-picking) are restricted to a small number of pupils, namely the Eco-Committee, and represent a missed opportunity to develop a

broader awareness of issues. Having said this, the member of staff who enables pupils to read the school's meters, demonstrates their ability to link actions (reading a meter) to outcomes (data can be used to understand the impact of energy-saving actions on energy-use). This is information that can be utilised to amend practices (Godoy-Shimizu et al., 2011).

The Eco-Schools programme makes persuasive connections between actions which reduce energy consumption whilst making financial savings (Eco-Schools Northern Ireland, 2019). When the school leadership sanctioned the partial installation of more efficient lighting, their decision was based on both environmental and financial considerations. By changing the way the practice of energy conservation is approached (by installing more energy efficient lighting) this changes the practice of conspicuously switching off lights to save energy. As a result, this changes the way practitioners experience the practice of sustainable energy consumption (Hargreaves, 2011).

Beliefs and actions of pupils compared with those of staff

There is a scarcity of information regarding pupil perceptions of environmental responsibility, yet when given the opportunity to share their thoughts and ideas, pupils are capable of offering illuminating insight into their beliefs (Green and Somerville, 2015).

The findings from the study provide clear illustrations of the similarities and differences between the beliefs and actions of staff and those of pupils. However, it is clear that there are a variety of thoughts and emotions connected to sustainability and the findings indicate that pupils engage in routine, easily achieved actions, such as recycling, switching off lights and reuse of paper (Zsóka et al., 2013). They participate because there is an expectation and implicit understanding that they will follow the class rules and the actions directed by their teacher (see Literature review section *Participation and power relations*). The findings also indicate that there is pupil dissatisfaction with the environmental efforts of the school and their Eco-Committee peers, yet staff believe that pupils dutifully perform the sustainable routines and enforce the range of practices. Additionally, staff believe that pupils will accept changes to practice and the inconsistencies within them. However, pupils (like staff) are aware of such inconsistencies and although some accept these lapses, others are disillusioned with them. In addition, they are aware of practices which are shaped by perceptions which differ from their own. It is also recognised that there are few opportunities available for pupils (and staff) to offer their evaluations of actions or ideas for more ambitious targets. Moreover, staff assume that pupils understand the reasoning behind the everyday routines and procedures taking place in school.

Contribution to knowledge

The research has extended our knowledge of perceptions of environmental responsibility in an Eco-School. The study has enabled the environmental perceptions of pupils to be highlighted and has demonstrated that pupils have viewpoints that may share similarities with those of their peers and staff and may also differ. Given the opportunity for pupils to share their thoughts about environmental responsibility, pupils are able to articulate their beliefs regarding shortcomings, limitations and their ability to make a difference.

The findings enhance our understanding of pupil participation in the process of environmental decision-making. That is, despite the collective, participatory ethos of the Eco-Schools programme the study has shown that pupil participation had barely reached a level of involvement where they had been assigned meaningful roles and fully informed of the reasoning behind actions (rung 4 of Hart's Ladder of Participation, 1992). Specifically, the study found that pupils offered important insights into the efficiency and value of environmental practices in school. Yet it seemed they seldom had worthwhile occasions to share their thoughts and contribute towards refining practices. Staff suggested they valued the role of pupils as participants in environmental actions and decision-making, however the opportunities for pupils to develop the competency to become increasingly involved were limited. Instead of facilitating the empowerment of pupils to be involved in consultations regarding actions or engaged in the decision-making process and able to influence targets (rungs 5 to 7, Hart, 1992), it seemed the school had (intentionally or unintentionally) cultivated a largely passive involvement of pupils who seemingly had few opportunities to voice their environmental understandings. In so doing, the school had missed opportunities to develop the skills pupils needed to tackle environmental issues. Additionally, the school was failing to benefit from the valuable pupil perceptions necessary to improve the effectiveness of environmental practices in school.

Furthermore, the findings from this study provide a new understanding of environmental responsibility within an Eco-School which had started to approach EE from a religious perspective. Although sharing a common goal of protecting the environment, it seemed that the Eco-Schools programme had become less important as a whole-school approach to understanding and developing environmentally responsible practices. This suggested a change in focus from a pupil-led environmental education programme which aims to empower pupils to lead the design, implementation and evaluation of environmental actions, to one guided by the religious character of the school and principally reliant on the cultural meaning of the religious doctrine to sustain practices.

Although it was unclear if this would influence the nature of pupil actions, the findings extend our understanding of a school which aimed to develop environmental responsibility by implementing the Eco-Schools programme and was also guided by religious environmental obligations.

The study demonstrated that by using the lens of social practice theory, the environmental beliefs, perceptions and actions of staff and pupils can be revealed. Additionally, the use of social practice theory provided insight into a breadth of conflicting or connecting practices and everyday social interactions. This has been invaluable for understanding how social practice shapes the life of staff and pupils (Hargreaves, 2011). It has also been shown that even with an environmental education programme to act as a scaffold, sustainable practices can be difficult to maintain and are subject to interpretation.

Implications and recommendations

The findings show that the school setting has an influence on pupil and staff perceptions of environmental responsibility. Despite indications that pupils have the capability to articulate their thoughts regarding their own and others' environmental responsibility and are able to communicate their perceptions of school efforts to encourage sustainability, pupils take part in simple environmental actions. Although the Eco-Schools ethos aims to empower pupils, by limiting participation in environmental decision-making to a select group of representatives, this serves to restrict most pupils to passive involvement. While the Eco-Committee is highly regarded by some pupils and is viewed by staff as the means to set targets, enforce actions and communicate progress, there is also dissatisfaction with its operation and effectiveness. This is demonstrated by pupil recognition of variation within and between sustainable practices (including the inconsistent modelling of behaviours by staff) and the apparent lack of changes to behaviours. Furthermore, differing perceptions of the meaning behind environmentally responsible behaviour has influenced changes to practices and led to the formation of new practices which can be far removed from their original sustainable intentions.

If schools hope to prepare pupils for the adaptations they will need to make to meet the challenges faced by climate change (Field, Barros et al., 2014), then all pupils must have the opportunity to regularly and genuinely participate in the process of environmental decision-making (Hart, 1992, Percy-Smith, 2010). Their delegated representatives must make concerted efforts to gather feedback and ideas from pupils to gauge how practices are faring. This will provide insight into successful elements that can be extended or problematic elements that need addressing.

It is recommended that:

1. All pupils are given a genuine opportunity to be listened to when they take part in making decisions about the curriculum and environmentally responsible practices in school.
2. Staff are educated to be clear about the reasons behind such practices. It is recommended that staff are supported in this process by gaining expertise and knowledge from collaboration with experts (Kadji-Beltran, Zachariou and Stevenson, 2013).
3. Pupils are clear about the reasoning behind practices, including the purpose of resources and infrastructure used to support these practices.
4. Pupils are equipped with the skills needed to deal with an uncertain future, including the ability to understand the environmental impact of their actions.
5. Behaviour change initiatives are considered in light of social practice theory so that each element of a practice is taken into account and adjustments made to assist performance and reproduction.

Limitations and future research

It had been my intention to gather data from a range of primary schools to gain a broader view of perceptions (Appendix 17). However, despite contacting fifteen schools, comprising of Eco-Schools with and without awards, pupils eligible for Free School Meals ranging from 57% to 1.7%, and energy spend per pupil ranging from £137 to £67, there were three responses, including one response to apologise for being willing but unable to take part. Finally, I opted for an in-depth study with one school and a relatively small number of participants.

Prior to interviewing pupils and staff, I had visited the school as a volunteer in one of the classes. Although this assisted with making informal observations in the lower Key Stage 1 classroom, staffroom and corridors, the observations were limited to a small area of the school and relied on the goodwill of staff to show me around the school site.

It became evident relatively quickly that maintaining effective communication with the school contact was problematic and delays in responding to emails or telephone messages led to sporadic visits to the school. Having said this, there was an opportunity to provide a brief presentation to Year 5 pupils to introduce them to my research and request their support. This yielded a small number of pupil participants and appropriate parental permission was granted to enable the pupils to take part in interviews. The school contact took responsibility for talking to staff about the project and although

this also led to several willing participants, it was unclear if all staff had been approached and it was some time before the staff interviews were organised and completed. I was aware that the small number of resulting interview participants and the restricted durations of time to carry out each interview may have meant the research may not be reliable. However, the research included a combination of qualitative methods which enabled data to be compared and this helped me to gain a rounded view as far as possible. The use of questionnaires for example, gave an opportunity for further questioning in order to gather additional insights regarding beliefs and opinions. Although they were only used with pupil respondents (due to the school's unexplained reluctance to issue them to staff, even as an online version), the responses were often enlightening and candid. As with the interviews, they were not intended to be representative of other primary school settings. By using a combination of methods, the findings gave insight into the perceptions of environmental practices taking place in school, and importantly, gave the respondents a voice.

The use of interviews with pupils was challenging due to the evident power dynamics present in school (Eder and Fingerson, 2002). Although pupils (and staff) had been given the opportunity to present their own ideas and experiences, I was mindful of their perceptions of me as a visitor from the local university who intended to ask questions (Robinson and Taylor, 2012, Thomson and Gunter, 2011). Although there are occasions when further prompting can be used to elicit additional information, restricted time allocations for each interview made this difficult. During the initial analysis of the interviews it was clear that certain responses would have benefited from elaboration and certain questions ideally could have been rephrased to enable respondents to answer more freely. Unfortunately, the opportunity to seek this additional interview information did not present itself.

Notwithstanding these limitations, the study suggests that when pupils are given the opportunity to share their thoughts and ideas, they are capable of articulating knowledgeable and frank perceptions. Despite this competency, pupils are limited to performing routines and procedures which may have environmental benefits, but are inconsistently performed, unambitious and directed by others. In addition, the shift to approaching sustainability from a religious perspective illustrates the changing faces of environmental education.

Future research would involve interviewing pupils during their final year of primary school and comparing these results with interviews with the same cohort during their first year in secondary school. This would aim to investigate their engagement with practices related to consumption of energy and resources, and to what extent they feel they have genuine opportunities to share their thoughts and ideas about the future. In addition, the opportunity to question practices and decisions relating to the environment and sustainability would provide insight into pupil evaluations and

analysis. Another possible area for future research would be to explore the potential impact of the religious character of a school on pupils' perceptions of environmental issues and responsibility.

Concluding thoughts

Since starting this study, there have been changes to the aims and key questions, methods and methodology, my understanding and skills. I have developed the confidence to plan, assemble, organise and interpret data. I feel able to adapt to changing circumstances, to find positives from setbacks and to learn from mistakes. My skills as a researcher may have transformed over the years, but it has always been my belief that pupils are capable of sharing their thoughts, ideas, perceptiveness and misgivings if they are given the chance to do so. As individuals who must face making adaptations as a result of a changing climate, it is important that they have the skills and understanding needed to tackle the future. The Eco-Schools programme offers the opportunity for staff and pupils to work together to develop awareness of environmental responsibility, but it needs to be a genuine whole-school approach involving the opportunity for all pupils to be fairly represented and heard. I had hoped that the Catholic perception of sustainability would complement the Eco-Schools ethos, but I feel that in this instance, the latter was becoming overshadowed. Having said all this, the research has shown that there are many instances of environmentally responsible practices taking place and involving staff and pupils who share similar beliefs. No doubt their thinking and reasoning about sustainable actions will continue to shape the practices, although more ambitious targets and actions are needed to really give pupils the opportunity to demonstrate their capabilities and make an impact on changing practices.

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Appendices

Appendix 1: Pilot study and materials

1.0 Introduction to the pilot

In primary schools, pupils are usually taught by the same class teacher and teaching assistant for the duration of the school year. Therefore, it is understandable that the actions and attitudes of the staff members are often observed or become clear to the pupils, perhaps as a result of demonstrations or explanations. Given that in England, over 70% of primary schools are registered with the Eco-Schools programme (United Kingdom National Commission for UNESCO, 2017, p. 7), and given that these schools aim to reinforce the knowledge and skills necessary for living a sustainable lifestyle, then pro-environmental attitudes and actions, to a greater or lesser degree, are likely to be common to both pupils and staff. For instance, actions such as switching off the classroom light when leaving the room or perhaps dropping used paper into a recycling bin, may routinely take place, perhaps only requiring an informal reminder or instruction, rather than a planned teaching point. Clearly such actions may be influenced by any number of factors, but the study aims to investigate, within the context of a primary school environment, the relationship between the attitudes and behaviour of teaching and non-teaching staff and those of pupils. It will be interesting to note whether pupils observe environmentally responsible behaviour during their school day and, if they do, who is completing these actions and does this prompt them to behave in a similar manner or is this believed to be someone else's responsibility. Perhaps there are few opportunities, a lack of interest or motivation to complete environmentally responsible actions. The study will seek to learn more about these ideas and, undoubtedly, more questions will be raised as the data is collected.

However, before any data can be collected or conclusions can be drawn, it is necessary to define what constitutes "pro-environmental" attitudes or "environmentally responsible" actions, so that any observations and descriptions can be better understood, compared and interpreted. One researcher, Howell (2013, p. 2), provides the following definition of environmentally responsible behaviour,

"The term is used here to refer to behaviour that seeks to reduce the negative impact of one's actions on the natural or built environment, whether or not this is done for ecocentric reasons"

Whereas Kollmuss and Agyeman (2002) interpret pro-environmental or environmentally friendly behaviour as,

“behaviour that consciously seeks to minimize the negative impact of one’s actions on the natural and built world, (e.g. minimize resource and energy consumption, use of non-toxic substances, reduce waste production).”

These appear to be very similar definitions due mainly to the intention to limit damage or impact. However, to act in a pro-environmental manner suggests that the safeguarding the natural world is of key importance.

During the course of investigations during the study, the terms “pro-environmental”, “environmentally friendly” and “environmentally responsible” will be used and the definitions provided will be employed. The definitions are applicable to the study because they offer understandable and relevant meanings.

1.1 Ethical considerations

The project seeks to investigate the relationship between the environmental attitude and behaviour of adults and pupils in primary schools, therefore it is necessary to include children as respondents because their input is essential. The University Ethics Committee scrutinized the project aims and methodology in accordance with ethical guidelines designed to protect human participants. Ethical approval was sought and approved prior to embarking on the process of contacting schools and meeting with staff and pupils. Disclosure and Barring Service (DBS) Clearance was gained.

For the pilot study, informed consent was sought and the safety, dignity, privacy and beliefs of the participants was respected. For example, they were free to participate without coercion and their values and beliefs were respected. In addition, they were informed of the right to withdraw from the study at any time.

1.2 Availability of staff and pupils

Before undertaking any data collection in a primary school, it is necessary to carefully consider the practicalities of such work. Schools are understandably busy places, containing groups of people who share a diverse range of personalities, roles and interests. It is essential to be aware of time constraints, availability of a range of staff and pupils and the varying levels of interest and understanding of sustainability within these groups.

Staff are rarely freed from their respective roles for long in a primary school. Whether teaching staff (class teachers, teaching assistants, learning support assistants) or non-classroom based staff (administrative, kitchen, cleaning, welfare or managerial), adults are usually engaged in their roles throughout the day with minimal non-contact time. It is not unusual for some staff to perform multiple roles, for example, Breakfast Club staff may also be employed as midday supervisors (lunchtime role) and potentially as teaching assistants. Staff are often present in schools long before the arrival and long after the departure of pupils, and are often engaged in after school clubs or meetings. As a result, it was necessary to ensure that staff were given release time which had been timetabled by the Headteacher and allocated time slots needed to be strictly adhered to. Similarly, pupils have busy schedules and each lesson will have been planned to accommodate additional support and extension work to target the needs of individuals. Time is short in primary schools and there is rarely time for “catch up” if a lesson or part of a lesson is missed. Therefore, in order to participate in interviews, the pupils would need to be absent from lessons at a time which would cause minimal disruption to their timetabled day. This necessarily requires the agreement of the class teacher.

It was hoped that a range of staff, both teaching and non-teaching (classroom and non-classroom based) would be available to be or willing to be participants, in order to obtain a wide range of values and attitudes. However, it is likely that many staff have limited opportunities to be released from timetabled commitments, in addition to some staff only being on site at certain times of the day. Similarly, the release of pupils is also difficult due to the pressures of a busy school timetable. Therefore, it would be prudent to enlist the full support of the Headteacher to sanction release of staff and pupils, but also to strongly encourage participation. In relation to ideal numbers of participants, there is seemingly no clear, recommended minimum number, rather it has been suggested by Cohen et al., (2013), that the interviewer must be clear that the interviewees “will be able to furnish the researcher with the information, i.e. that they possess the information” (p. 421).

1.3 Range of questions

Within any organisation, naturally there is a range of levels of knowledge, understanding and attitudes. With regards to the implementation of procedures designed to support sustainability, pupils and staff would therefore be likely to possess a breadth of values, ideas and awareness of these procedures. Consequently, it is necessary to clearly and equitably word each interview question in order to provide opportunities for meaningful responses. It was considered appropriate and effective to use interviews as the main method of gathering data because,

“interviews enable participants (interviewer or interviewee) to discuss their interpretations of the world in which they live and to express how they regard situations from their own point of view” (Cohen et al., 2013, p. 409).

Although there are pros and cons associated with the use of interviews such as the potential for stilted responses to questions or prompting leading to bias, the method also provides an opportunity for a face-to-face meeting using pre-prepared questions, yet maintaining some flexibility for clarifying questions or answers if necessary (Aldridge and Levine, 2001, cited in Cohen et al., 2013).

1.4 Method of data collection

It can be difficult to chart observations of environmentally responsible actions taking place in a primary school. This is largely due to logistical considerations facing a sole observer, such as the number of areas within a school building and its grounds, e.g. hall, offices, kitchen, staffroom, plus numerous class rooms.

However, data collection by 1:1 interview offers the opportunity to gather data relatively quickly, thereby making effective use of timetabled slots for interviews, as well as offering opportunities for respondents to share thoughts and information in a confidential manner. Use of a digital recorder provides a simple means of saving data in preparation for transcription, whilst questions viewed as they are asked, therefore providing an important element of transparency as well as valuable thinking time.

2.0 Data collection

This section details the process of data collection. The work was conducted in order to develop investigative techniques and to obtain preliminary data regarding the performance of everyday, routinely-performed environmentally responsible actions in a primary school. The pilot study aimed to investigate any relationships between the actions of teaching and non-teaching staff and those of Year 5 pupils. It was envisaged that the pilot study would inform and develop the investigative techniques needed to meet the aims and objectives of the thesis.

Twelve local primary schools were approached during the early part of the Spring term (January and February), to participate in the project. The Headteachers were contacted by post and by email, in

order to increase the likelihood of the correspondence personally reaching the attention of the Headteachers, rather than being filtered by a school secretary. For the sake of convenience and for consistency, potential participating schools were located within a 5-mile radius of the University. Details regarding socio economic status (SES) were obtained in order to support consistency (Department for Education, no date). Initially, SES was considered to be important primarily for consistency of choice, but also because other researchers considered the background of respondents when identifying their participating schools, e.g. Bouve-de Pauw and Van Petegem (2011). Programme for International Student Assessment index used for determining economic, social and cultural status) and Johnson and Manoli (2011) categorised the SES of participating schools). However, partly due to the low response rate leading, ultimately, to a limited number of schools willing or able to participate in the pilot study, in conjunction with Bouve-de Pauw's conclusion that "using a composite variable for tapping a person's background can result in misleading composite effects" (2011, p. 192), it was determined that the choice of pilot school would not be dependent on the socio economic status of the participants.

Following the distribution of correspondence to each school, the Headteacher of one local school showed interest in participating. After an initial face-to-face meeting with the Headteacher to discuss the project, it was agreed that a period of contact time as a classroom-based volunteer would be beneficial to enable staff and pupils in Year 5 to become familiar with my presence. This was followed by the Headteacher distributing prepared information sheets and consent forms to interested pupils, parents and staff.

The number of volunteers was small (seven staff, two pupils), but it was deemed to be a sufficient number to trial the methods outlined below. I felt that the participants, although small in number, would be able to offer valuable insight due to their extensive experience within the setting.

A semi-structured interview was devised to investigate the relationship between the pro-environmental actions and views of staff and those of pupils. The interview questions were designed to meet the aims and objectives of the thesis.

Part 1 included a preliminary section that aimed to provide a gentle introduction to the interview in the form of questions relating to pupil aspirations and Headteacher-specific questions regarding the fabric of the school. Part 1 contained a further four sections relating to:

(i) perceptions about sustainability, (ii) the forms of energy consumption and resource utilisation taking place in school, (iii) approaches to learning about, experiencing and demonstrating

environmentally friendly activities in school, (iv) barriers and motivators to informal environmentally friendly actions, including school policy and actions of adults.

In order to better understand the relationships between the motivations, behaviour, thoughts and attitudes of pupils and staff, the sections focused on what the participants do, how they do it and why they do it, within the context of the school setting and sustainability. So for example, questions forming section 5 sought to gauge understanding of the provision and usage of facilities and policies in school designed to support sustainability. Work by Kollmuss and Agyeman (2002) for instance, highlighted the importance of infrastructure, such as provision of recycling bins, to facilitate environmentally responsible behaviour. In addition, Satchwell (2012) recognised the valuable contributions of individuals rather than a reliance on whole-school policy, when aiming to institute workable procedures.

Part 2 consisted of a version of the Children's Attitudes towards the Environment Scale (CHEAKS) and the two dimensional model of ecological values (2-MEV) (Bogner, 2006, cited in Boeve-de Pauw and Petegem, 2013), amended to suit both adults and upper primary school aged children.

In order to maintain interest, the interview contained a range of approaches to gathering information and this is discussed in more detail in the following section.

2.1 Semi-structured interview

Based on the aims and objectives of the research project, the interview aimed to investigate:

- (i) Pupil and staff perceptions of the environment and sustainability
- (ii) The range of environmentally friendly activities taking place in school
- (iii) Approaches to learning about and experiencing or demonstrating environmentally friendly activities in school
- (iv) Barriers and drivers to performing environmentally friendly activities, including school policy and actions of staff and pupils

At the outset of each interview, the participants were thanked for being willing to support the research by providing their time and thoughts. Each respondent was reminded of confidentiality and of ethical issues, such as the option to withdraw their participation if desired. They were also reminded that there were no right or wrong answers to the questions, simply that their responses would provide valuable material for the investigation of the use of resources and energy by adults

and pupils in a primary school. Each one-to-one interview lasted for approximately 30 minutes and took place during school hours and in areas within the school allocated by the Headteacher.

The interview took a standardised form and involved the use of a repertoire of planned questions. The semi-structured nature of the interview and the use of open-ended questions was intended to allow for the development or elaboration of ideas by the respondent. The one-to-one nature of the interviews created the potential for seeking clarification if necessary, but care would need to be taken not to readily prompt, for fear of creating bias. Also, it was hoped that by interviewing a range of staff and pupils, it would be possible to search for any relationships, similarities or differences between responses.

Each activity or question was based on a range of themes related to the aims and objectives of the study and broadly divided into qualitative Part 1 and quantitative Part 2. The rationale behind the use of both forms of research methods was simply to provide ample opportunities for comparison of responses from staff and pupils. This will be discussed in more detail in the Methodology chapter.

Part 1 contained introductory questions for pupils regarding their hopes and aspirations, with the aim of helping them to feel more comfortable with the interview and to regard it as an opportunity to talk rather than to answer “test” questions.

Similarly, Part 1 contained questions for the Headteacher to provide context in terms of the fabric of the school and sustainability.

2.1.1 Part 1 Section 1: perceptions about sustainability

Card sorting was introduced as an initial activity. A set of cards (featuring forms of transport) was used to demonstrate the method required to group according to criteria. Following the brief demonstration, another set of cards featuring 8 items commonly found in schools was introduced, e.g. paper, water, apple, interactive whiteboard. The reasoning for using a card sort was to gauge the respondent’s understanding of terminology by using categorisation to show their thinking or knowledge (Rugg and McGeorge, 2005).

The second activity consisted of the introduction of a scenario. A photograph showing an office in a state of disarray was presented to the interviewee and a scenario regarding an office worker called Tom was read aloud. The story included several questions being posed, e.g. what do you think Tom did to make the office look tidier? What did Tom do with the newspaper, banana skin and apple

core? The questions and scenario enabled respondents to suggest their interpretations of solutions for tidying the office. For example, as they studied the photographs they were encouraged to consider what the character did to tidy his office or could do to feel warmer.

Question 1 offered the respondent an opportunity to describe, from a set of options, what they perceived to be the reason for switching off a light when leaving a room. Several options were provided, including “a habit” and “carefully considered.” Respondents were then asked, in the following two questions to suggest the likelihood of this action being observed and why. This question aimed to determine whether or not these actions are considered to be automatic and without thought (habitual) or whether a conscious decision is made (Ouellette and Wood, 1998).

2.1.2 Part 1 Section 2: the forms of energy consumption and resource utilisation taking place in school

Question 4 required the respondents to consider the utilisation of paper and card in school. The question sought to determine how card and paper is disposed of in school. Equally, question 5 asked the respondents to describe the use of electrical equipment in school and requested information regarding the disposal of spent batteries.

Question 6 invited participants to continue to reflect on the consumption of energy and resources in school. This provided an opportunity for describing additional forms of energy and resources use.

The purpose of question 7 was to encourage the respondents to recall any observed examples of wasteful or economical energy consumption, in addition to any observed examples of careless or cautious use of resources. They were then asked (question 8) to describe any instances of themselves using resources or energy in this way.

2.1.3 Part 1 Section 3: approaches to learning about, experiencing and demonstrating environmentally friendly activities in school

This section was divided into questions for staff and questions for pupils. Although the questions were similar in so much as they sought to determine the ways in which the participants had learned to perform informal environmentally friendly actions, the questions for the adults were posed to

ascertain whether they felt that their actions had been observed by pupils. Similarly, the questions for children were posed to ascertain whether they had seen anyone implement these actions.

Therefore, question 9 (pupils) asked if they had observed anyone switching off a light for example and whether an explanation was provided for the action.

Question 10 (pupils) developed the idea of how the pupils may have learned to use energy and resources “carefully” in school. This led to question 11 which sought to encourage pupils to recall any other examples of observed “careful” usage. Pupils were left to determine what they considered to be “careful” usage. An opportunity to provide further information was given in question 12 when pupils were asked why they felt the observed person may have acted in this way. The regularity of such actions was checked in question 13.

Staff were also asked how they may have learned to use energy and resources in a sustainable manner (staff question 9). In addition, they were asked if their actions were observed by pupils (question 10) and conversely if they had seen children perform this type of action (question 11). Both questions 10 and 11 included the option to elaborate.

2.1.4 Part 1 Section 4: barriers and motivators to informal environmentally friendly actions, including school policy and actions of adults.

Staff were asked if the school had organised any special “Green” weeks or campaigns. This question sought to determine if there had been any overt attempts to promote sustainability in school in the form of a whole-school event. Similarly, staff were asked in question 13 to recall if the school had a sustainability policy. They were then asked if sustainability measures were evaluated and if they were invited to provide feedback regarding any measures. The purpose of these questions was to gauge the responsiveness of staff and the management to the methods of promoting sustainability.

Pupils were invited to consider their intentions if they observed an adult completing an informal environmentally friendly action. That is, they were asked if they would copy the action or not. In addition, they were asked to provide an explanation for their intended behaviour.

2.1.5 Part 2 of the interview focused on a quantitative method of data collection.

The environmental values of the participants were obtained by using an amended version of Bogner and Wiseman's 2006 model. This was utilised by Boeve-de Pauw and Petegem (2013b) and offered a set of understandable and thought-provoking statements suited to both adults and children.

Participants were requested to use a Likert-type scale to indicate their response to the series of statements, ranging from strongly agree to strongly disagree. If they were unsure of a response, they were asked to point to the middle comment. The statements were based on Preservation Values and Utilisation Values (2-MEV) to check ecocentric (protection of the environment) and anthropocentric views (use of the environment) respectively and covered areas such as enjoyment of nature of care with resources (Johnson and Manoli, 2011).

The final section of Part 2, provided five statements, based on Leeming's Children's environmental attitude and knowledge scale CHEAKS (Leeming, Dywer and Bracken, 1995) and amended by Boeve-de Pauw and Van Petegem (2013b). This instrument seeks to ascertain self-reported environmental behaviour, such as commitment to energy use or recycling for example. Again, participants were given a Likert-type scale to signify their responses.

3.0 Data analysis

The following section details the analysis of the data collected from the interviews which formed the basis of the pilot study.

3.1 Transcription

All but one interview was transcribed, the reasoning behind the decision to not transcribe the final interview was due to the interview being terminated prior to completion as a result of timetabling constraints. The resulting recording was patchy in content and clearly demonstrated haste and some biased prompting.

The data from the remaining eight participants was analysed using qualitative data analysis. Initially, each participant's audio interview was transcribed into a word-processed form. Each interview was transcribed, as far as possible, into a word-by-word account of responses. If any unexpected prompts were given by the interviewer, these were also noted in order to highlight any unforeseen examples of bias. Any interesting asides or non-verbal gestures were to be noted in brackets as they were recalled during the transcription process. The transcriptions were re-read and audio interviews were listened to again in order to recall the interview as a whole and any additional notes written to act as reminders. The process of qualitative coding, of "...defining what the data is about...naming

segments of data with a label that simultaneously categorises, summarises and accounts for each piece of data” (Charmaz, 2006, p. 43) was used to facilitate interpretation of the data.

3.2 Coding

After reading all the transcripts again, it became clear that recurring themes were emerging, as well as individual responses and remarks. These notes were pencilled in the right-hand margin of the transcript and all notes were compiled into a list of c.130 comments in preparation for reducing to form the first draft of codes. Common themes were grouped together under headings, and these formed the basis of the first draft of codes. Additionally, any singular comments or notes were listed and could be used as necessary to code more unusual responses or remarks. The transcripts were re-read and the first draft of codes was utilised. They, and any other points regarding interpretation, were pencilled into the left-hand margin.

During re-reading, the quantity and content of the codes was reassessed and rationalised to become less cumbersome but still applicable and informative. Definitions for each code were formed and the codes were grouped under headings relating to emergent themes. The categories originated from broadly the same sources. That is, in addition to their links to the aims and objectives of the study, they originated from the content of the transcripts. The title of the “Drivers and barriers” category was influenced by research by Kollmuss and Agyeman (2002). This discussed why there is a perceived gap between environmentally responsible attitudes and behaviour. Additionally, the term is used by Shove (2010) regarding positive and negative influences (p. 1275). In both cases, The terminology seemed to be appropriate for the code pertaining to expectations, habit and reliance on technology for example.

Examples of codes are as follows:

- 1 Drivers and barriers: Accountability, expectations. habit. knowledge, values and attitudes, opportunities to observe, reliance on others, reliance on technology.
- 2 Evaluation: Consistency, impact, influence, opportunity to feedback.
- 3 Interpretation of terminology, e.g. sustainability, resources, energy
- 4 Procedures: Interpretation, reinforcement of procedures, including influence.

The Nvivo programme was used to locate coded text from the transcripts and to collate quotes from the text to serve as examples to support inferences.

With regards to the quantitative part of the interview (Part 2), Excel was used to illustrate the frequency of responses to each statement. The tabular data was transformed into a clustered column chart to enable straightforward comparison of pupil and staff data (see Figures 1,2,3). It was determined that use of percentages would be misleading due to the small number of participants, especially pupil participants. It was not thought to be necessary to use complex statistical analysis in order to make sense of the data, due to the small number of participants. Instead, simple comparisons were made between the values of the staff and pupils in response to each statement.

4.0 Findings

The following section details the findings of the analysis. The sections correspond to the coding categories used during analysis of content.

4.1 Drivers and barriers

4.1.1 Accountability

Determination of role

It is interesting that almost half of the adult respondents mention that lights and equipment are switched off at the end of the day and there is some indication of which person may be expected to take responsibility for this action. For example, the Headteacher expects the last person to leave the room to switch off the lights, whereas the water heater is turned off at night by an unspecified person. Possibly, it is likely to be the caretaker and cleaning staff, because a class teacher mentions the checks carried out by the caretaker, and reference is made to the cleaners emptying the recycling bins and therefore being party to their usage. So generally, although staff certainty of agency is somewhat unclear, the response from a pupil regarding responsibility is very clear.

“I don’t really [think about switching off the light] when I leave a classroom I don’t really think about that because the teacher does it” T3 81 82

This seems to indicate a clear expectation that the class teacher’s role includes switching off the light. Whether this is because the class teacher has explained or demonstrated the action is unclear. However, it seems to serve as a barrier to encouraging this particular pupil from seeking to switch off the light. Interestingly, the pupil’s class teacher recalled that pupils had made posters/labels to remind staff to switch off lights and she had positioned them around the school. This effort to remind staff in addition to her evaluation that the pupils are proficient energy savers (T4 109 110,

does seem to indicate that mixed messages are being relayed to pupils regarding responsibilities and consistency of performance.

Group responsibility

The respondents focused on the following sustainability procedures: switching off lights when no longer needed, turning off equipment, e.g. computers, at the end of the school day and recycling items such as paper and cans. It is unclear which group is thought to be responsible for maintaining resources so that they are in good condition in readiness for use. It could be gauged from the following class teacher comment regarding usage of resources, that the participant is suggesting that the upkeep of resources is the responsibility of staff, rather than children.

“Some of the younger staff I think are quite wasteful, especially with replenishables [consumables] they just throw it away. Whereas as an older teacher you think, oh just put it in your junk box” T1. And in fact, the comment regarding the “younger staff” suggests that the participant feels that a greater understanding of reuse and avoidance of wastage is required by this group.

This assessment contrasts with the “taken for granted” view that primary teachers cautiously buy and use resources, as demonstrated by the comment from a young class teacher:

“And especially as teachers... All of our resources are so precious to us” T4

However, as a former primary school teacher, it is known that many teachers are assigned a subject co-ordinator role which entails the provision of a limited budget, thereby necessitating a judicious approach to spending. Consequently, when a class teacher responsible for the design technology budget encourages the children to be responsible users:

“things like the glue, felts any of the art type materials, I will make it quite explicit to them, because its more me telling them but they’ve got to take responsibility for it” T2

It is likely that the reasoning is mainly due to budgetary constraints rather than environmental concerns. Although limited funds may serve to encourage sustainable use of resources by staff and pupils, it may be argued that mindful energy use is considered an important responsibility by a range of groups within the school. That is, it was a common expectation that computers, kitchen equipment and lights should be switched off when not in use and this was viewed as a group responsibility; namely the responsibility of members of the school community, rather than the responsibility of an individual. However, as mentioned earlier (Determination of role), it was not

always evident which group or groups was being cited as responsible, e.g. teaching staff, non-teaching staff, pupils. Rather, the usage of “we” was a regular response, e.g.

“We make sure that all the lights in the classroom are switched off at the end of the day” T6

Worth noting however, is that neither pupil respondent mentioned group responsibility, despite teachers encouraging recycling, prudent glue use and so on.

Self-responsibility

Yet regarding self-responsibility, pupils offered examples of reuse of paper and switching off equipment when it is no longer required. That is, one pupil volunteered an example of taking paper from what the teacher calls the “scrap paper tray” in order to draw a picture for his relative. Similarly, the other pupil participant indicated that the reason why she would try to perform similar actions after seeing an adult recycling paper or switching off a light, is because she:

“...didn’t want to waste energy and paper” T5

The pupil examples seem to suggest a willingness to perform environmentally friendly procedures irrespective of whether their peers are also performing the actions. However, it may also be the case that the pupils are willing to follow classroom rules (use of “scrap paper for doodling” class teacher T4) or perhaps they gauged the general nature of the interview questions and gave “expected” responses. This is difficult to ascertain and indeed it may be that the performance of rules, whether environmentally based or classroom -based, would require further examination.

Non-teaching staff members provided additional examples of self-responsibility. One staff member chose to bring in spent batteries from home and deposit them in the battery collection cylinder, and the other non-teaching staff member spoke of turning down the heating in the hall.

In contrast, teaching staff were willing to disclose that although they were generally adept at using the recycling bins, they could improve their sustainable energy usage by switching off lights and equipment when not in use. These candid responses are not overly surprising, because overall the staff were able to offer many instances of performing environmentally friendly actions but may have classed their own actions as being part of the whole school drive towards sustainability. Teachers often talk in terms of “we” and “us” and this is almost implicitly understood within a primary school

community to mean individuals as well as groups. Further questioning may have provided greater insight into this rationale.

4.1.2 Expectations

There is a belief that the children are aware of the purpose of the recycling bin in the classroom. However, although this may be the expectation, it seems that the children require regular reminders to use it,

“we’re always reminding the children” T1 lines

One class teacher stated that the children know to separate food waste from paper when disposing of items for recycling. Certainly, a pupil respondent from this class could differentiate between the forms of waste,

“If it’s drawn on, if someone’s drawn on it, it’s put in the bin, if no one’s used it and its nice and flat they just put it in this little drawer.” T3 lines

However, it is unclear whether the pupil is differentiating between items for recycling and items for reuse. In contrast, it was clear that a non-teaching respondent was aware of the distinction between reuse and recycling when she stated that,

“in the classrooms, I suspect it is put in recycling and not used again because you’ve got a blank piece on the other side haven’t you, that you can use it again,” T7

Yet, from this comment, it is also evident that there is uncertainty regarding the motivation behind separation of card and paper in classrooms by pupils and staff.

4.1.3 Habit

In question 1, respondents were offered a list of possible reasons, for switching off a light when leaving a room in the school. They did not ask for a definition of a habit, yet almost without exception, respondents described the action as a habit. It may be presumed that they understood a habit to be akin to the definition provided by Steg and Vlek (2009).

“habits refer to the way behavioural choices are made, and not to the frequency of behaviour” (p. 312).

One respondent went further and suggested that although they may habitually turn off the light when leaving the ladies toilet, they must remind themselves to switch off the class room light when leaving. This is interesting because the same energy-saving action is considered a habit in one room but not in another. The pupil responses were equally noteworthy, because although both pupils are from the same class, one spoke of the action being a habit whereas the other spoke of the action being the role of the teacher (T3). So again this could be interpreted as the teacher’s habit or perhaps viewed simply a responsibility (see Accountability: determination of role). In fact, every member of staff, including the pupils’ class teacher, defined the action as a habit, therefore suggesting that the action is regularly observed by the pupils and, as noted by the class teacher, something with which pupils were keen to assist (see T4),

“The children are good at turning lights off if I’ve left them on, the children in my class especially will turn them off.”

Time constraints lead the pupil mentioned earlier to throw away his lunch if he feels he is too late to eat it.

“Normally if I’m for late dinner I just put it in the bin.” T3

This response to having insufficient time to eat, appears to be a habit, due to the use of the word “normally” and perhaps implying an action that does not require conscious thought because it is the usual course of action.

No other participants mentioned their reaction to being late for lunch and so it is difficult to compare responses. However, it may be fair to suggest that a habit formed as a response to limited allocations of time seems to drive unsustainable food wastage.

4.1.4 Knowledge, values and attitudes

Environmentally responsible attitudes and values are demonstrated by all staff respondents. For example, one teacher cites the use of batteries for remote controlled devices, used as part of the Design Technology topic. Specifically, the teacher notes that the batteries used are,

“not normally rechargeable ones. I don’t think they’re safe to recharge in school” T1

It is interesting to note that a preference for rechargeable batteries is mentioned, but for safety reason, they are not used in school. However, this is not necessarily school policy, due to the teacher somewhat tentatively offering their opinion? Perhaps this reluctance to use rechargeable batteries, perhaps due to limited, up-to-date information, could be considered a barrier to encouraging a more sustainable approach to battery-use? Using rechargeable batteries and a battery recharger unit, bought from a reputable educational supplier, would provide regular opportunities for pupils to observe or be involved in the process of recharging batteries. Although the use of a battery recycling collection point in school is also a clear demonstration of an effort to reuse and recycle, the batteries are removed from the school site for recycling, unlike the use of a recharging unit which is a visible means of preparing batteries for reuse.

Some researchers (Bradley et al., 1999, Stir, 2006 and Summers, 2000, cited in Lukman et al. 2013, p. 94) have suggested that pupil attitudes towards the environment could be influenced by attitudes of their teachers and so if more respondents had been available, it may have been possible to infer similarities in pupil-staff attitudes, perhaps in regard to battery or paper usage. So it is of interest to learn that the Headteacher demonstrated her belief in promoting environmental responsible behaviour, when she described where the recycling bins had been positioned in classrooms, offices and near photocopiers. This was in addition to her efforts to encourage the reuse of paper and the installation of an energy-efficient boiler for example. The reasoning may be financial due to the necessity to regularly report to Governors, in order to justify and allocate budgets. However, they may be clear examples of her environmental values. Other staff members communicated their beliefs regarding paper use, battery recycling and the use of consumables. Each adult respondent spoke positively about their various procedures to promote sustainable energy and resource use. Although the two pupil respondents could offer few examples of similar actions when directly asked, there was an awareness of paper set aside for reuse and the use of battery chargers in their classroom. Additionally, the initial interview activity regarding the use of a scenario to elicit responses, yielded illuminating responses from the pupils. For example, both suggested that the character in the scenario could simply wear an extra layer when they begin to feel cold, presumably in preference to switching on the heating or turning up a thermostat. This corresponded with a similar response from all adult respondents.

4.1.5 Opportunities to observe

Opportunities to observe environmentally responsible actions or procedures may vary markedly depending upon such variables as the time of day (during, before or after the school day), who is present (staff or pupils) and who is performing the action (pupils, teaching or non-teaching member of staff). The action may be highlighted or emphasised as it is being demonstrated or it may be a casual, informal event.

Some staff respondents suggested that their actions would either not be observed because they are not based in a classroom or because the children are not present because they have left the room. One respondent noted that although she works in the kitchen, her colleagues would observe and in fact,

“Well the girls that work with me they just follow so it’s a habit for them too.” T8

So, it can be inferred that the respondent believes that by observing her actions, such as switching off equipment when it is no longer required, her colleagues have also developed the habit of turning off equipment after use.

Another staff respondent was certain that pupils assembled for the pre-school hours Breakfast Club, would regularly observe her action of switching off lights in the hall during, whereas another respondent felt that no-one would probably notice her actions due to everyone (pupils and staff?) being engaged in activities. These contrasting views of staff are of interest because the pupils could provide instances of actions observed in the class room and in the hall. In other words, they are observant and are readily able to recall seeing the interactive whiteboard or lap taps being switched on or off or left on standby. In addition, one pupil noted food waste in the dining hall,

“Resources that have not been used carefully because in the dinner hall the little kids tend to waste like their dinner and drinks are put in like this bowl or put their dinner in the bin.” T3

It would be interesting to discover if this observation is shared by other pupils or members of staff.

4.1.6 Reliance on others

In a small community, such as a primary school, it is likely there will be a dependence on others to attend to their assigned roles and expectations with minimal disturbance, to encourage smooth transitions throughout the day. For example, this may concern following instructions for changing a library book or separating paper for recycling.

Depending on the level of reliance, it may be considered either a driver or a barrier to the promotion of environmentally responsible actions. An over-reliance on an individual or group to perform procedures may lead to disappointment if that group or person fails to carry out them out. Conversely, it may be that staff and pupils can be implicitly trusted to routinely implement such actions.

According to one class teacher, the site supervisor can be relied upon to switch off lights, equipment and so on. Whereas the Headteacher believes the class teachers should remember to switch off their equipment at the end of the day. This divergence of expectation is interesting because the class teacher's comment perhaps alludes to an over reliance on the site supervisor to check that equipment and lights are turned off and may serve to reduce the likelihood of teaching staff committing themselves to these energy-conserving tasks.

Interestingly, neither of the pupil respondents provided clear examples of relying on others to carry out environmentally responsible actions, perhaps because it is taken for granted that staff and pupils have clearly defined roles in school?

4.1.7 Reliance on technology

Similarly, neither pupil respondent provided clear examples of their dependence on the relevant features of technology to conserve energy, possibly because these features have been set prior to usage by pupils.

Moreover, two class teachers and the Headteacher stated that the photocopier uses a standby mode, whereby it moves into a semi dormant state during periods of time when it is not in use. Despite defining this as an energy-saving mode, the reasoning behind the use of this feature, according to one class teacher, is seemingly to save time. This disclosure confirms research by Stern (De Young, 2000, cited in Stern, 2000, p. 415) which suggests there may be multiple reasons for behaving in an environmentally responsible manner, e.g. using a bicycle as a means to exercise rather than to reduce emissions from car-use. Further questioning of the respondent would have possibly led to more insight regarding motivation.

The use of standby or hibernation is understandable in a busy classroom when tasks are requiring the use of equipment, interspersed with periods when technology is not required. Spending time logging on or switching on equipment would only take a small amount of time but may interrupt the flow of

a lesson, especially when considered cumulatively. However, the reliance on standby and hibernation modes in technology is questionable during longer periods of inactivity, for example during lunchtimes or Assembly times. A pupil could be given the responsibility to shut down and reactivate equipment such as the interactive whiteboard or computers. Certainly, Upper Key Stage 2 pupils are often keen to help and are generally capable of accepting the responsibility of performing this task, which in turn is likely to be observed by peers and can become an everyday occurrence or habitual.

4.2 Evaluation

4.2.1 Consistency

It is evident that the T1 participant is aware of the inconsistent use of sustainable procedures, but it is unclear who is being held responsible, because both staff and pupils may have left the building.

Staff were generally aware of their inconsistencies regarding the conservation of energy. For example, there was agreement that lights were regularly switched off when leaving a room, whereas IWBs were regularly left switched on for extended periods of time. This was noted by a pupil respondent,

“The computers are normally off but the boards are normally on.” T3

The other pupil respondent mentioned that the IWB was left on standby, so it is interesting to consider how the pupils have interpreted the power mode of the equipment in their classroom. It is apparent that their class teacher highlighted other environmentally responsible actions. For example, it was noted that the classroom recycling bins were used appropriately by the children and lights were switched off when necessary.

A new, energy-efficient boiler had recently been installed in the school, however, remarks regarding the energy-efficient use of central heating were only made by two members of staff. That is, the non-teaching staff commented on the inconsistent approach to sustainability whereby the heating was on but windows were open. In fact, despite being based in areas other than the classroom, the respondent stated,

“I don’t think it’s used carefully. The heating is on now and I don’t think it should be. I just don’t think it’s needed especially in the classrooms...” T8

This is a significant comment because it would be expected that a pupil, teacher or teaching assistant would be more likely to make this comment due to their location throughout much of the school day.

4.2.2 Impact

This theme continued when the non-teaching member of staff went on to comment,

“I turn the heating down to 2, the blowers in the hall, I turn down to 15 from 21. I’ve just come from 30-degree heat in Tenerife. It’s free.” T8

This comment also raises questions regarding roles and responsibilities because it is unlikely that the pupils would be expected to or permitted to do this, yet for environmental reasons it would be a prudent action.

By comparing the action of turning down the thermostats, presumably when temperatures have reached a comfortable level, with an example of natural heat being produced at no cost, this appears to indicate an awareness of the economic costs of energy use and therefore the necessity of performing procedures designed to conserve this usage. Similarly, a class teacher noted the importance of carefully storing resources after use or, as in the case of misplaced lids for glue sticks or colouring pens, the pupils are familiar with the procedure of locating “used” lids, i.e. lids that have been saved from expended resources and used to preserve the contents of operational resources.

“especially with the glues and felts, they are really good at it now, they know, they don’t even come and ask me anymore they just know if they can’t find any they just go and get them out of the drawer...” T2

This “lengthening of shelf-life” approach to using resources, devised by the class teacher, is in turn employed by her pupils and therefore reduces the immediate need for replacement stock.

One class teacher respondent is aware of the benefits of using technology, in this case a USB facility for recharging, in order to save electricity. It would be interesting to note if pupils are aware or involved in using this facility, because the teacher noted that pupils chosen to switch off the classroom light, earnestly perform the task. It would be of interest to discern whether the peers observe the performance of this task and wish to emulate their friend and if so, for what reason. However, limited pupil respondents during the pilot study make this difficult to assess.

4.2.3 Influence

Following on from the example given above (see Impact) which effectively extends the life of commonly used resources, the class teacher also supplied the term “the glue police” (T2) to describe her pupils who have been given the responsibility of checking for lids. At the outset, it could be said that the teacher has influenced the “glue police” to behave in a similar manner or it could be that the pupils simply enjoy the responsibility. But by undertaking this task, these pupils are potentially influencing their peers to check and perform similar actions. Considering that research by Lukman determined that the environmental attitudes of teachers “*play a key role in influencing students’ attitudes*” (Lukman, 2013, p. 94) then it may be fair to suggest that the attitudes of pupils may be influenced by those of their teacher.

Parents who were willing to donate items of clothing previously worn by their children as part of the school uniform, were adopting the environmentally responsible action of reuse. It was noted by a non-teaching member of staff that the donated items were sold by the school for a minimal fee in order to raise funds for the school. Therefore, the action of donating articles for reuse could be said to have been for environmental reasons or for economic reasons; either way, the parents had been sufficiently interested or influenced to be willing to recycle rather than discard the clothing.

Additionally, it could be suggested that the non-teaching respondent who works in the school kitchen, influenced her colleagues to act in the same way as herself,

“Well the girls that work with me they just follow so it’s a habit for them too [to switch off lights].” T8

However, the same respondent felt strongly that her environmentally responsible influence should go further than the kitchen,

“Just to get the word around, you know, that you don’t need the heating on as high as they do and for the length of time around the year as they do” T8

Similarly, the Headteacher appraised the positioning of the battery collection cylinder,

“...but no one knows it exists because it just props the doors open.” T6

Yet this evaluation was only partially accurate because its location and purpose was in fact reported by all staff respondents, but interestingly not by the pupil respondents. Therefore, the sourcing and positioning of the cylinder, was serving to prompt staff to use it when necessary, but not necessarily

the pupils. However, one pupil mentioned the procedure of charging laptops when necessary, which may indicate that the use of disposable batteries may not be evident in class rooms.

4.2.4 Opportunity to feedback

Neither pupils nor non-teaching staff felt they knew of or were sure of opportunities to offer feedback regarding the performance of environmentally responsible actions. This contrasted with teaching staff who suggested that the site supervisor and the cleaning staff were most likely to evaluate procedures because they regularly emptied the recycling bins, but whether they then had the opportunity to feedback was unclear.

Feedback from the Headteacher to the Governors was cited. This was regarding the efficiency and subsequent energy bills arising from the installation of a replacement boiler. One teacher proposed the “any other business” section of a staff meeting is a potential forum for offering feedback. While another class teacher responded with the suggestion that a subject co-ordinator may use a staff meeting as an opportunity to discuss the organisation of a short-term action. Generally, however, it seems that there was no agreed forum for discussion of environmentally responsible actions or procedures, e.g. School Council meeting, comment box, allotted staff meeting discussion point.

4.3 Interpretation of terminology

The pupils described instances of usage of paper and defined the associated vocabulary in contrasting ways. That is, one respondent described the container for spare paper as the “scrap paper box” T3. This is interesting because it suggests that paper stored for reuse is perhaps considered as discarded leftovers. If a comparison with scrap metal items is used, then it could be said that the paper has some value but not necessarily highly regarded. By contrast, when also asked to recount examples of usage, the other pupil respondent responded with:

“Because sometimes in class, people use paper, but haven’t wrote anything on it, they chuck it, so energy not being used carefully.” T5

This seemingly shows confusion regarding terminology, e.g. energy, resources, as well as indicating that unlike her peer, she is not overly familiar with the use of “scrap paper” in her class room.

In order to provide clarity and avoid confusion, it can be useful to apply descriptive labels consistently or provide a clear description of the item. So, for example regarding the container used to collect spent batteries in preparation for recycling, the adult respondents provided a number of names for this receptacle: battery tower (T4), recycling tube (T1, T6 and T8), battery recycling tube (T7), and battery recycling cylinder (T2). Although the adult respondents provided generally specific definitions of this item, the pupil respondents either focused on the use of battery chargers or were unsure where spent batteries could be deposited in school. As discussed earlier (see Influence), this could indicate that pupils are more aware of the use of rechargeable batteries rather than disposables, rather than inconsistent use of terminology.

When the word “sustainability” was used in the interview question 13 (aimed at staff), it was questionable whether this term has an agreed interpretation within the school. Although the issue of sustainability is complex (see Literature Review), the interview question sought only to learn more about the evaluation of sustainability measures as stated in the school’s sustainability policy (and if such a policy existed). Therefore, when one class teacher stated.

“I’d say it’s just linked in to our own, our ethos, where it says you know, friendly, safe school...” T4

It could be inferred that this does indeed link with the “Inclusion and participation” element from the Sustainable Schools Framework (SEEd, no date, b) whereby a respect for human rights is encouraged. However, the same teacher also suggested that the “health and safety” section of a staff meeting offered an opportunity to discuss sustainability measures. So, it could also be inferred that perhaps the member of staff has misinterpreted the meaning of sustainability.

4.4 Procedures

4.4.1 Interpretation

If environmentally responsible actions such as turning off lights or reusing printed paper, are to lead to tangible energy conservation or a reduction in the use of resources, it seems fair to suggest that they need to be understood and duly undertaken by staff and pupils.

A non-teaching member of staff demonstrated a distinct understanding of the process of recycling and reuse of paper when she noted,

“...in the classrooms, I suspect it is put in recycling and not used again because you’ve got a blank piece on the other side haven’t you, that you can use it again...” T7

Yet her response also indicated that she was uncertain about the likelihood of classroom-based members of staff or pupils recognising that printed paper could be reused.

In response to the interview question regarding use of standby mode (question 5), it was disclosed that laptops were left on standby during the evening and turned off at the plug during the weekend. As suggested, this choice of power function could save precious time each morning, but it is doubtful that this reasoning wholly corresponded with the notion of environmental responsibility.. Rather, it seems to tally with a study by Kollmuss and Agyeman in which the authors cite the work of Diekmann and Preisendoerfer whereby,

“ they propose that people choose the pro-environmental behaviours that demand the least cost...[such as] ...time and effort...” (Diekmann, 1992, cited in Kollmuss and Agyeman, 2002, p. 252)

4.4.2 Reinforcement of procedures, including influence

By pupils

Although pupil respondents provided no additional examples of their performance of environmentally responsible actions, as mentioned earlier (see “Interpretation of terminology” and “Expectations”) one pupil did use paper from the “scrap paper drawer”, as well as recalling the use of a charger for laptops (see “Influence”). Consequently, it is somewhat difficult to ascertain their actual level of participation and how this may relate to staff performance of similar actions.

Similarly, the staff responses indicated that pupils are vigilant about turning off lights,

“The children are good at turning lights off if I’ve left them on, the children in my class especially will turn them off.” T4

Additionally, the Year 5 pupils sought to reinforce procedures by designing notices (and strategically placed around the school by the class teacher). The action of producing literature to enforce procedures may primarily be the result of following instructions given during a lesson. However, the objective of the lesson would presumably be to prompt others to conserve energy and so the pupils have fulfilled this objective by producing effective notices.

Similarly, the “glue police” mentioned earlier (see Influence) are likely to enjoy the responsibility of the assigned role, as well as reinforcing the conservation of resources,

“at the start of the year I have like I call them the glue police go and check the drawer once all the glues are out and make sure they’ve all got lids on...” T2

By staff

Many staff members supplied examples of procedures being reinforced. For instance, regarding separation of materials for recycling and ensuring lids are replaced on pens and glue sticks. In addition, there was reference made to asking children to wear their jumpers if they felt cold. This effort to conserve energy corresponded with a comment from a non-teaching member of staff who felt it was necessary to,

“get the word around, you know, that you don’t need the heating on as high as they do and for the length of time around the year as they do.” T8

The Headteacher provided a clear endeavour to promote sustainability, when she stated,

“I did get the recycling bins and positioning them so that they’re positioned either side of the photocopier machines. And when new building work has been completed I’ve asked for the lighting to be energy efficient.” T6

In addition, the Headteacher regularly demonstrated energy conservation to the pupils during Film Club whereby pupils are enlisted to switch off the computer. Interestingly, a pupil also noted a similar action when describing the action of his class teacher,

“If Miss isn’t using it she normally turns it off or if someone’s not using something they always shut it down before they do anything else.”

4.5 Card sort

Sorting techniques can be a useful tool for eliciting knowledge because it is thought that,

“people make sense of the world by categorizing it, and people can describe their own categorization ... with reasonable validity and reliability” (Rugg and McGeorge, 2005, p. 95).

The use of card sorts was thought to be an appropriate technique to use during the interview, not only because it could perhaps help to obtain interesting information about the respondent's knowledge of terminology, but also because it offered a practical exercise that was a departure from a series of questions and answers. The participants were given a brief tutorial using a set of cards related to forms of transport. Instructions included the importance of choosing a "reason" (criteria), followed by sorting the cards into groups according to the criteria, e.g. means of travel. The exercise was repeated using the same cards but different criteria in order to demonstrate the variety of ways to show knowledge and understanding of the terms via the process of grouping (categorisation), e.g. travel using two wheels, travel on water. This example was followed by the participant using cards related to items commonly found in school, e.g. paper, water, library book. Although it seemed clear that every participant eagerly sorted the cards, it was also apparent that without exception, they were not offering an overarching criterion, instead opting to simply group items. The groups provided insight into the range of categories used by each participant, but it was hoped that the criteria would serve to show to what extent the participant understood the terminology related to sustainability, e.g. recyclable, wasted, used carefully. It was also hoped that the number of times categories were used ("commonality" page 102) or which items were "left over" could offer opportunities for comparison, for instance, common understanding of terms, differences of opinion. On reflection, the exercise would have potentially yielded more constructive results if the criteria had been supplied at the outset of each sort. It would also have expedited the process, which did require a cautious limit given the strict allocation of time per interview. Perhaps it would be advantageous to provide a separate session from the main interview, in order to provide more time and opportunities for demonstration or clarification of procedures and expectations. However, due mainly to timetabling pressures, time is restricted in primary schools and so this would be an unlikely development.

4.6 Scenario

Another activity which differed from standard questioning was the use of a scenario and photographs. The photographs supported a fictional scenario of a person who had left their office in a hurry and showed the condition of the room, e.g. scattered papers, apple core on the table, desk light switched on. Participants were able to study the images whilst listening to the story and were asked questions, such as "what do you think he did to make his office look tidier?", "what could he do to feel warmer?" and "where have the banana skin and apple core gone?" (see Section 1 Activity 1.) The use of a scenario is a common approach deployed in primary schools to elicit empathetic ideas and thoughts which may emerge from using a relatively familiar setting as a

discussion starting point. For the study, it was hoped that participants may offer insight into their intended actions regarding the use of resources, heating and lighting.

Generally, staff shared the same responses which indicated environmentally responsible thinking, e.g. recycling, close the window, switch off light, wear a jumper. Some went further and alluded to adding the food waste to “recycling. Interestingly, the response from one staff member focused on how the character may tidy up if they were in a hurry (participant 6). This seemed to indicate that time constraints could lead to items being thrown away rather than sorted in preparation for recycling.

Both pupil respondents suggested that items, including food waste, would be dropped into the office bin. This may indicate that a lack of clear recycling facilities, contrary to those found in their school environment, led to a focus simply on “tidying up” rather than considering recycling facilities may be available elsewhere? However, as with the staff members, the pupils suggested that an extra layer would suffice if the character felt cold, rather than turning up the heating.

4.7 Quantitative findings

For outcomes of questioning represented as graphs, see:

Figure 1 Pupil and staff preservation values

Figure 2 Pupil and staff utilisation values

Figure 3 Pupil and staff environmental behaviour values

4.7.1 Statements and summaries of responses to each statement:

Preservation Values (2-MEV)

P1 It upsets me to see the countryside taken over by building sites.

Pupils and staff agreed with the statement, with the exception of one member of staff who strongly disagreed.

P2 I enjoy trips to the countryside (woods, meadow).

Pupils and staff agreed.

P3 Humankind will die out if we don't live in tune with nature.

Overall, staff and pupils agreed with the statement or remained neutral, with the exception of one staff member who strongly disagreed.

P5 Sitting at the edge of a pond watching dragonflies in flight is enjoyable.

Difference of opinion. Both staff and pupils were split between agreement and disagreement.

P6 I save water by taking a shower instead of a bath.

Pupils either agreed or disagreed. Whereas staff responses varied widely from strongly agree to strongly disagree.

P8 We must set aside areas to protect endangered species.

Staff and pupils agreed with this statement.

P9 It is interesting to know what kinds of creatures live in ponds or rivers.

Pupils and staff were in agreement with this statement.

P10 Dirty industrial smoke from chimneys makes me angry.

Generally, pupils and staff agreed, but two staff members either strongly disagreed or remained neutral.

Utilisation values (2-MEV)

U3 Our planet has unlimited resources.

Pupils remained either neutral or in agreement and similarly, half of the staff agreed with the statement. However, the other half disagreed with it.

U4 People have the right to change the environment (nature)

Pupils agreed with the statement, whereas half the staff remained neutral and the remaining staff were split between agreeing and disagreeing with the statement.

U5 We must build more roads so people can travel to the countryside.

Views varied widely. Pupils either remained neutral or disagreed with the statement. Staff generally disagreed but one member of staff agreed with it.

U6 I like a grass lawn rather than a place where flowers grow on their own

Pupils and staff generally provided similar responses, e.g. neither agreed nor disagreed, with one staff member agreeing with the statement.

U8 People worry too much about pollution.

Generally, staff and pupils disagreed with the statement, but one member of staff agreed with it.

Environmental behaviour

B1 To save energy, I turn off the lights when they are not needed

Overall, staff and pupils were in strong agreement.

B3 I have asked others what I can do to reduce pollution

Pupils remained neutral, whereas staff were evenly split between agreeing or disagreeing with the statement.

B4 I often read stories about that are mostly about the environment

View differed widely with both pupils and staff, ranging from strongly agreeing to strongly disagreeing.

B5 I do not separate things at home for recycling

Pupils and staff disagreed with the statement.

B6 I have not written to someone about a pollution problem

Pupils strongly disagreed, whereas staff responses were evenly split between agree and disagree.

4.7.2 Summary of Quantitative findings

Regarding Preservation values (P), the values of the staff and pupils were broadly in agreement, with the exception of P5 and P6. Here the values of the staff members greatly varied and similarly the pupil values varied greatly.

Regarding Utilisation values (U), patterns of agreement or disagreement were similar between the pupils and staff. For example, regarding U8, generally, staff and pupils disagreed with the statement, but one member of staff agreed with it. However, when considering whether or not the natural supply of resources is infinite (U3), the values of staff and pupils differed markedly, with staff being split between agreeing and disagreeing, This distinct difference in values was also mirrored in response to U4, where staff were divided in their views, unlike the pupils.

Environmental behaviour responses showed the greatest range of differences between and within groups of respondents, with the exception of responses to B1 concerning the conservation of energy (complete agreement) and (B5) separation of items in preparation for recycling. For example, with regards to (B4) reading environmental literature, there was wide variance of responses both within and between groups. The pupil responses to pollution related statements (B3 and B6), indicated similarities, whereas the staff responses varied.

These findings suggest that overall, staff and pupils maintain similar values, although it would be imprudent to make generalisations due to the small number of participants. Additionally, it may be that despite taking care to utilise language that was considered appropriate for both adults and upper Key Stage 2 pupils, one pupil requested further explanation of terms. That is, the use of the word “lawn” required clarification, as did (B5) “separate things at home for recycling”. It may therefore be worthwhile providing images of these to accompany the statements, in addition to providing oral clarification if requested.

Figure 1: Pupil staff P values

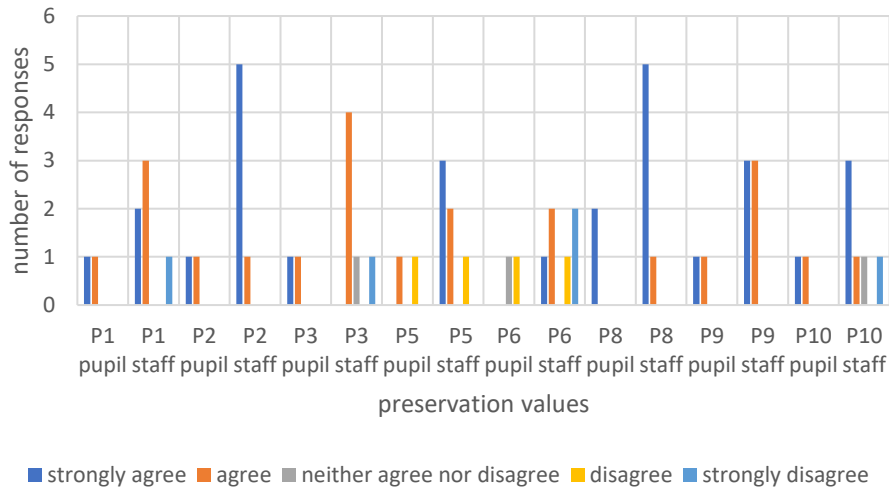


Figure 2: Pupil and staff U values

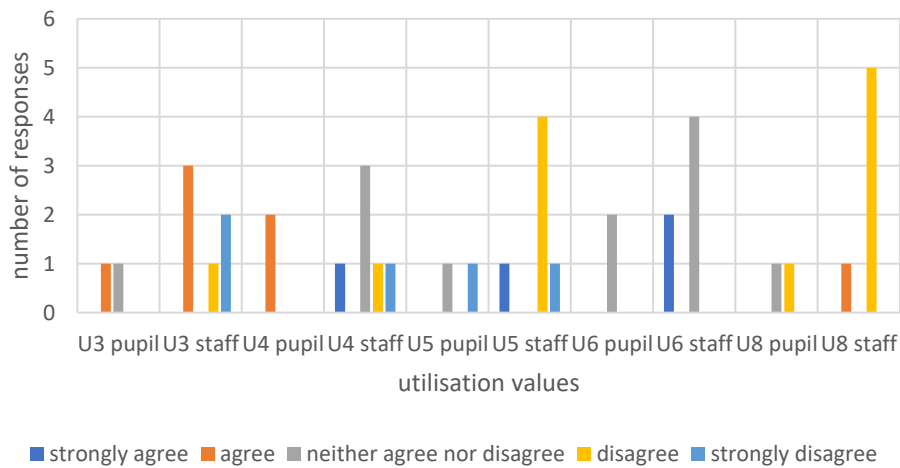
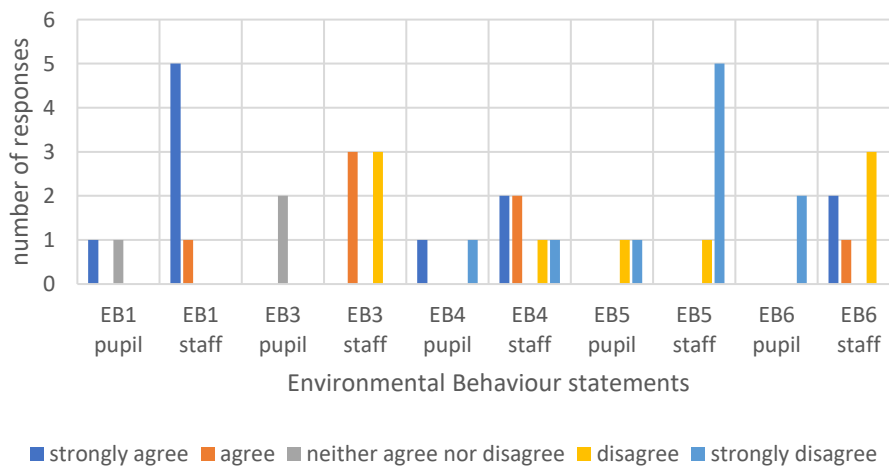


Figure 3: Pupil staff Environmental Behaviour



5.0 Summary of findings

A summary of findings was prepared and emailed to the Headteacher of the pilot school. It was agreed during the initial meeting that it would be fair to present findings to provide the Headteacher with evaluative material that may be of use for continuing the school's drive towards a more sustainable use of energy and resources.

The following section outlines these findings:

5.1 Interpretation of procedures

Staff are aware of the facility in school to deposit spent batteries in preparation for removal for recycling. Interestingly the name of this collection point varied depending on the respondent, e.g. battery tower, recycling tube. Similarly, paper and card which has been partially used and has been reserved for reuse, has been given a variety of names, e.g. scrap paper, spare paper and rubbish. One pupil recounted using "spare" paper from the "scrap paper" drawer, so it was evident that this resource is accepted as a valid source of paper.

There may be a variety of reasons for leaving lights and equipment switched on for extended periods of time. Staff respondents explained that lights may be left on for safety reasons, especially on the stairs and it is necessary to leave office computers switched on in order to ensure certain procedures can take place. Similarly, pupils recognised that teachers needed to use the laptop to complete tasks and so they were not immediately shut down when pupils left the room for instance. But due to the limited number of pupil respondents, it was unclear whether they had surmised the reason for the delayed action or if this had been explicitly explained to them.

5.2 Reinforcement of procedures

5.2.1 Teaching staff

Procedures were reinforced in a number of ways ranging from "leading by example" as well as role play, direct commands, reminders and demonstrations of procedures. Sometimes teachers modelled procedures, such as how to use art resources carefully in order to prevent wastage. It may be that this was driven by budgetary concerns, because teachers have assigned subject co-ordinator roles and have limited budgets. This was mentioned by one teacher as the reason for encouraging careful usage/storage and for "leading by example". However, it was generally agreed by teacher

respondents that the values and attitudes of class teachers encompass careful usage of resources and regular reinforcement of such.

5.2.2 Pupil actions

Due to the small number of pupil respondents involved in the study, it was unclear whether pupils observed and copied actions. However, it was disclosed by one pupil that they were not overly concerned about switching off the classroom light because the teacher performed this task. This was contrary however to an explanation provided by the other pupil respondent who explained that they switched the class room light off several times per day.

It was not evident from the responses of the pupil participants whether they or their peers reinforced environmentally friendly procedures. However, they did recognise that their teacher switched off equipment when it was not in use and encouraged pupils to use paper responsibly. One pupil suggested that the reason for this was because her peers,

“... didn’t want to waste paper”

While the other pupil respondent suggested that in terms of energy use, they,

“didn’t want to waste ...like a battery or a computer ...because they want to go on it later...”

These comments indicated that the efforts made to reinforce sustainable actions were, at least in part, understood by the pupils and their behaviour in the class room reflected this.

5.2.3 Non-teaching staff

The staff who were not directly involved in classroom-based work, provided examples of reinforcement of environmentally friendly actions when working with children in the Breakfast Club before the start of the school day. That is, lights in the hall were only used in the areas where the children are based, rather than all hall lights being switched on. Similarly, both participants were keenly engaged in a variety of energy and resource-saving activities, including prudent reuse of office paper and lowering the heating level in the hall. Certainly, the former action was regularly observed by pupil members of the Breakfast Club and interestingly, colleagues based in the school kitchen and office were cited as likely observers of these and similar actions.

5.2.4 Headteacher

The Headteacher approached the route to a more sustainable school by ensuring lighting and heating systems were more energy efficient. For example, a modern boiler and sensor-activated lighting had been fitted following a request by the Headteacher. In addition, and in a further effort to reduce bills and improve sustainability, recycling bins were positioned in every classroom and near photocopiers. The former actions may not be as overt in their intentions as the latter actions, but it was clear that much effort was being made to promote and reinforce an environmentally-responsible ethos. For example, the pupils were regularly encouraged to switch off the computer during Film Club and this action served to reinforce energy saving measures.

It was evident from the responses from both adults and children, that there were many procedures in place which aimed to encourage a more sustainable approach to school life. There were overt efforts, such as the placement of recycling bins and careful reuse of paper, to the less obvious efforts, such as changes to more energy-efficient lighting and heating systems. There was general agreement amongst staff that paper recycling was a common feature of school life and pupils readily participated in this procedure. Battery recycling was mentioned by all adult respondents and efforts were made to use this facility, including usage from the wider school community.

Staff were able to evaluate the procedures and note areas of strength, as well as areas for improvement. Some staff were unclear how they could offer feedback regarding measures to increase sustainability, yet many were keen to offer valuable ideas.

The pupil respondents also offered valuable insight into the range of pro-environmental actions taking place in school. Regularly occurring actions were noted by both, e.g. reuse of paper, switching off/recharging electrical equipment, adding another layer (jumper) when cold. In addition, food wastage during lunchtime was mentioned, but interestingly they did not mention the battery collection tower.

6.0 Discussion and recommendations

Nine interviews in one day proved to be overly taxing, due to the intensity of questioning and necessity to remain closely to timing of 30 minutes per interview. Although generally, the timing was carefully adhered to, it became difficult to maintain close concentration as the day wore on. It may be prudent

therefore, when organising arrangements with the Headteacher, to discuss limiting interviews to mornings or afternoons, rather than the duration of a whole day.

The provision of acting as a volunteer in class, provided a useful opportunity for meeting with the class teacher, pupils and teaching assistant, while providing welcome classroom support. It was determined that a more formal introduction to staff and pupils may have led to undue preparation of responses and perhaps a less candid interview. During the full-scale data collection, informal observation will be used as a method of data collection, but notes will be maintained in a field notebook and supported with photographic evidence when necessary. This will enable a more thorough examination of observations during the analysis stage, as well as permitting the addition of further notes in the margin if patterns or anomalies have been observed.

Photographs will be used to capture examples of visual and documentary evidence of environmentally responsible practice. Scrutiny of documentary and visual evidence, such as displays, newsletters or notices, will provide an additional source of data, which may not necessarily be proffered during the interview process.

Ideally, the inclusion of more pupils and non-teaching staff, including welfare staff and cleaning staff, would have been beneficial for providing a more rounded representation of attitudes and relationships in school. Additionally, it would enable comparisons to be made between a larger and more representative sample, leading to greater scope for interpretation and inferences. For example, noteworthy information was provided by a member of staff who worked in the kitchen as well as in the office. Similarly, a school administrative assistant also worked with the Breakfast Club (a group of children who arrive in school prior to regular opening times and take part in activities supervised by staff) and so was able to disclose information pertaining to both roles. It was hoped that there would be at least as many adults as children would take part in the interviews in order to offer a fairer representation of respondents.

During initial arrangements with the Headteacher, it would be worthwhile highlighting the importance and value of gathering responses from a range of staff (classroom and non-classroom based), in addition to seeking the participation of Year 5 pupils (to be tracked in Year 6).

Regarding the use of codes, most codes were found to be applicable and aided the understanding of the texts. However, some codes were repeated unnecessarily, for example Drivers and Barriers section 3.4 Reliance upon others, seemingly repeated section 3.1 Expectations. Similarly, Procedures: 2.1 Interpretation appeared to repeat Evaluation: 4.1 Consistency.

Although generally, the use of a scenario and photographs offered an opportunity for participants to share their ideas, the wording of the questions may have limited the responses. For example, use of the word “did”, e.g. “What did he do with the newspaper? What else did Tom do to tidy up the office?” may have reduced the range of responses because “did” implies that there is a correct answer to the question. Substitution with the word “might” or “might do” could serve to broaden the range of responses, as it implies that there are a number of possibilities.

Regarding the preparation of the interview materials, it would be useful to separate the prepared sheets into adult and child interviews. This may also aid the location of relevant sections during the interview itself. Additionally, because it was noted that many participants seemed to read each question as it was being asked, they would then see that each question was more closely tailored to their role in the school, in terms of context or terminology.

It is important to note that much information from respondents could have “implied meanings” (Charmaz, 2006, p. 33). That is, within many institutions, there are preconceived ideas and “taken for granted” interpretations which, when viewed by an outsider, may generate assumptions. Equally important, is ensuring that responses are interpreted in order to give meaning. For example, when comparing responses from a Year 5 class teacher and a Year 5 pupil, it is necessary to consider what has been said, rather than simply describe a response.

Bearing in mind the previous teaching experience (as a primary school teacher and teacher trainer) of the interviewer, much of the language and behaviour of staff and pupils would be familiar and understandable. However, the implicit meanings of certain primary school-based procedures or language may not be immediately apparent to those who are unfamiliar with the setting and so it would be important to carefully examine responses by employing both the insight of a former teacher, together with a willingness to look beyond implicit meanings, asking for further explanation when necessary.

The opportunity to add further information or to elaborate on a response, forms part of the amended version of the interviews. Further amendments are to be made to the interviews, including combining the Headteacher and staff interview to form a single, adult interview and separating the staff from the pupil interview to provide a more straightforward format when reading and recording.

Overall, the questions and activities in the Pilot study effectively elicited useful responses from participants, however a number of questions are to be modified to provide greater opportunities for providing information. For example, the provision of a question regarding feedback will be added to the pupil interview (question 22) because I feel this may provide further insight into the influence of

adults in school, e.g. whether there is a demonstration of a fair or open approach to providing feedback in matters concerning sustainability. At times, wording will be changed to support pupil understanding of the question or to avoid bias. That is, rather than asking how “carefully” energy and resources are used, I will rephrase the question (originally question 6) to limit the likelihood of it being interpreted as a leading question, i.e. one which assumed they “carefully” used resources. I will remove questions which were repetitive (e.g. originally staff questions 9 and 11, which are very similar to questions 6 and 7; originally pupil question 10 which is similar to pupil question 6) and combine bullet-pointed questions (originally question 6) relating to energy and resources, to provide participants with a potentially broader range of experiences to choose from rather than focusing on a limited range.

I have decided to regularly and more clearly outline the objective of sections and questions, so that participants will have a clearer understanding of the purpose of the questioning and perhaps be able to form more considered responses as a result. This is developed further with the addition of section 5 to the amended version of the interviews, to offer an additional occasion for developing their responses if desired.

On reflection, the card sorting exercise and quantitative section of the interview will not be included in the full-scale process of data-collection. The decision to omit the former is due to several reasons. It did not lead to respondents using the exercise to clearly define their understanding of terminology. Rather, it became simply a sorting task, perhaps because participants were not fully conversant in the objective behind the exercise. In addition, the task took more than five minutes to perform and this used valuable time, for little gain. Regarding the omission of the quantitative element of the interview, I feel that due to the constructionist epistemological position of this study, the research requires qualitative methods to collect and analyse data. That is, methods which enable interpretation and exploration of the research topic, rather than descriptive statistical analysis of the data.

Pilot study materials

Participant:

Initial *Headteacher* quick questions:

- *Can you tell me briefly about the fabric of the school in terms of energy saving installations or devices please?*
- *What would you say were the main reasons for making these facilities available?*

If an *ECO SCHOOL*:

- *Can you tell me about life as an eco-school? What are the benefits? Are there any disadvantages? In what ways do staff help to bring about sustainability?)*

Part 1 Qualitative

SECTION 1 activities and questions

Activity 1

Card sorting activity:

JD examples (i) all these cards are types of transport. I'm thinking of a reason to sort these cards. I'm thinking about where they travel. So, the groups are- roads, air, water, railway track. (ii) now I'm thinking about the title of the person who is in charge of each type of transport. So, the groups are- pilot, captain, driver, other. (iii) I'm now thinking about transport that someone could use to travel to and from work in Preston. The groups are- public transport, private, other.

Introduce cards showing various items found in schools. Read aloud instructions shown on intro card. Record criteria and groupings.

Activity 2

Introduce scenario-

Show photographs [office setting with paper and card strewn over desk surface, overflowing paper bin, paper shredder, open window, radiator, desk lamp switched on, jumper over back of chair, apple core/banana skin on the table.]

Explain that Tom works in an office. Unfortunately, Tom left his office in a hurry last night and **this** is how he left his desk.

So, he needs to spend a few minutes tidying up before he is ready to start work.

What do you think Tom should do with the newspaper, the paper in the bin, the banana skin and the apple core?

What else do you think Tom should do to tidy up the office?

After a while, Tom starts to feel cold while he's sitting at his desk. What do you think he should do to feel warmer?

Soon it's time for dinner and Tom is looking forward to eating his packed lunch and having a chat with his friends. He picks up his bag and leaves his office. What else do you think he should do before leaving his office?

Q1 In school, if you leave a room and switch the light off, how would you describe this action? Would you say (and choose any that apply) the action was:

A habit

Carefully considered

Just remembered at the last minute

Something else

Q2 What is the reason for your choice of answer?

Q3 And continuing with this theme, how likely is it that your action will be observed (seen by someone else)?

Q4 Why might this be?

SECTION 2

The following questions aim to tell me three things:

- Ways in which energy and resources are **generally used** in school
- Ways in which **you use** energy and resources in school
- Ways in which **you have seen** energy and resources used in school

Paper and card: I would like you to think how paper and card are used in school. So, say for instance, paper from the printer that has been printed on but is no longer needed.

- Q5 So, what happens to paper and card in school when it is no longer needed?
- Q6 Can you describe any occasions when **you** have done this with paper or card in school?

Technology: Looking around a modern school, it is easy to find technology and electrical equipment almost everywhere.

- Q7 So, thinking now about technology in school, such as the interactive whiteboards or computers, can you tell me when they are switched on or off or left on standby?
- Q8 Please try and tell me about any other examples of electrical equipment used in school. When are they switched on, left on standby or switched off?
- Q9 Also, some types of equipment need batteries, so when you are in school and the batteries run out of power or energy, where do the old batteries go?

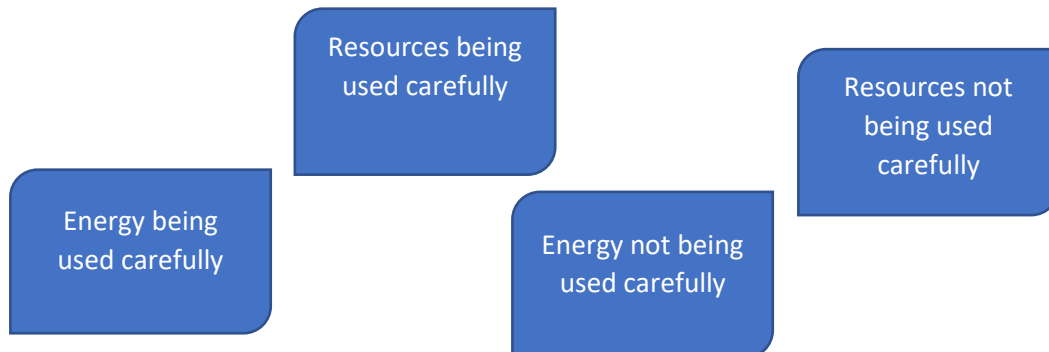
- Q10 Can you describe any occasions when **you** have done this with batteries in school?

Energy and resources are often expensive and finite, so we tend to use them carefully. Now we've talked about some of the ways that energy (from batteries for example) and resources (such as paper and card) are used in your school...

- Q11 Please try and tell me more about the ways **you** try to **carefully** use **energy and resources** in school
- Q12 Thinking about each one, **how often** would **you** say **you** try to avoid wasting energy and resources?

The focus now is on what you have observed taking place in school.

Q13 So, which of these have you **seen** taking place in school? [JD will list any examples]



Q14 Please indicate whether it was a member of staff (S) or a pupil (P) performing these actions.

Q15 How often would you say you see these things happening?

SECTION 3

The focus of this section is the observation of actions by pupils.

Q16 *Thinking about your actions, such as switching off a light etc. is this **observed** by any children?*

Q17 *If yes, can you describe any of these occasions please?*

Q17 *If no, why might this be?*

SECTION 4

The focus of this section is whole school events/actions/ethos.

Sometimes a school building and grounds are designed to help use energy and resources carefully. For example, some schools have double glazing, others have recycling bins.

Q18 *Has an energy saving campaign or special "Green" week or something similar ever taken place in school?*

Q19 *If yes, could you summarise what was involved please?*

Q20 *Is there a school policy regarding sustainability?*

Q21 *Are sustainability measures evaluated?*

Q22 *If yes, what are the outcomes of monitoring please?*

Q23 *Do you have an opportunity to provide feedback on sustainability measures?*

Q24 *If yes, have you personally provided feedback?*

Q25 *If yes, would you be willing to share this feedback with me please?*

Part 2 Quantitative

*I will read out several sentences about the way we use or save energy and resources. Please show me **how you feel about each sentence by pointing to the comment on the scale**. If you are unsure, please point to the middle comment.*

Preservation Values (2-MEV)

P1 It upsets me to see the countryside taken over by building sites.

P2 I enjoy trips to the countryside (woods, meadow).

P3 Humans will die out if we don't think that nature is important.

P5 Sitting at the edge of a pond watching dragonflies in flight is enjoyable.

P6 I save water by turning off the tap while I brush my teeth.

P8 We must protect areas that are home to rare animals and plants.

P9 It is interesting to know what kinds of creatures live in ponds or rivers.

P10 Dirty exhaust fumes make me angry.

Utilisation values (2-MEV)

U3 Our planet has never ending, infinite resources.

U4 People have the right to change the environment (nature).

U5 We must build more roads so people can travel to the countryside.

U6 I like a lawn rather than a place where flowers grow on their own.

U8 People worry too much about pollution.

Environmental behaviour

B1 To save energy, I turn off the lights when they are not needed.

B3 I have asked others what I can do to reduce pollution.

B4 I often read stories about the environment.

B5 I do not separate things at home for recycling.

B6 I have not written to someone about a pollution problem.

**THANK YOU FOR YOUR TIME AND FOR
SHARING YOUR THOUGHTS**

Card sort

bicycle 3	bus 5
red car 1	blue car 2
boat 7	lorry 8
train 9	scooter 4
motorcycle 10	

Think of one reason, then sort the cards into groups.
Remember you can have a "don't know" group.
There are no right or wrong answers.

drinks can

6

paper

7

banana

8

apple

5

water

4

library book

1

library book

1

whiteboard pen

2

Likert-type scale

strongly disagree

disagree

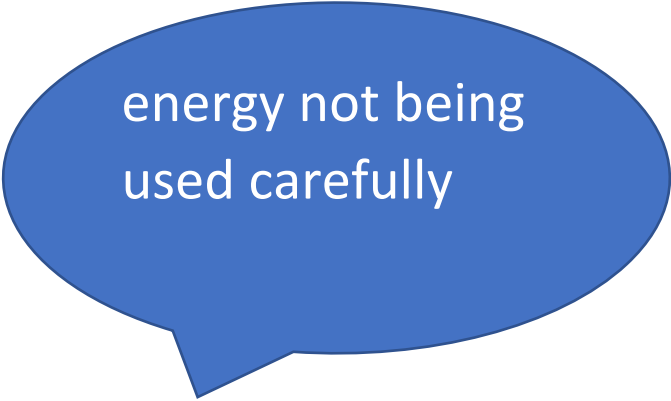
neither agree nor disagree

agree

strongly agree



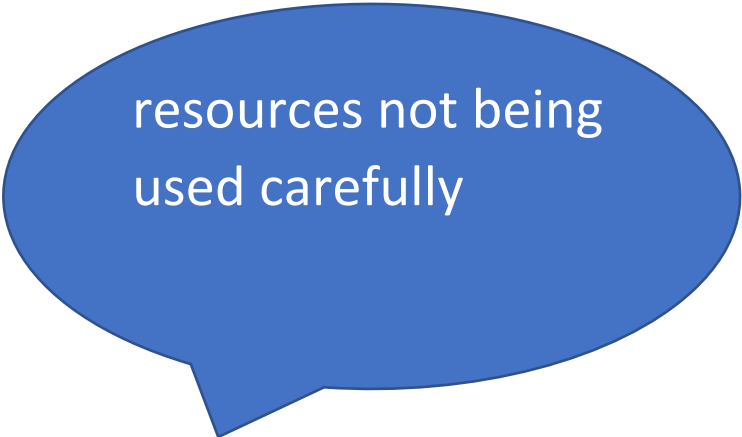
Energy use and responses




energy not being
used carefully



resources being
used carefully



resources not being
used carefully



energy being
used carefully

Response options

**avoiding
waste**

**recycling
resources**

**It's just
what I do**

**just
remembered
at the last
minute**

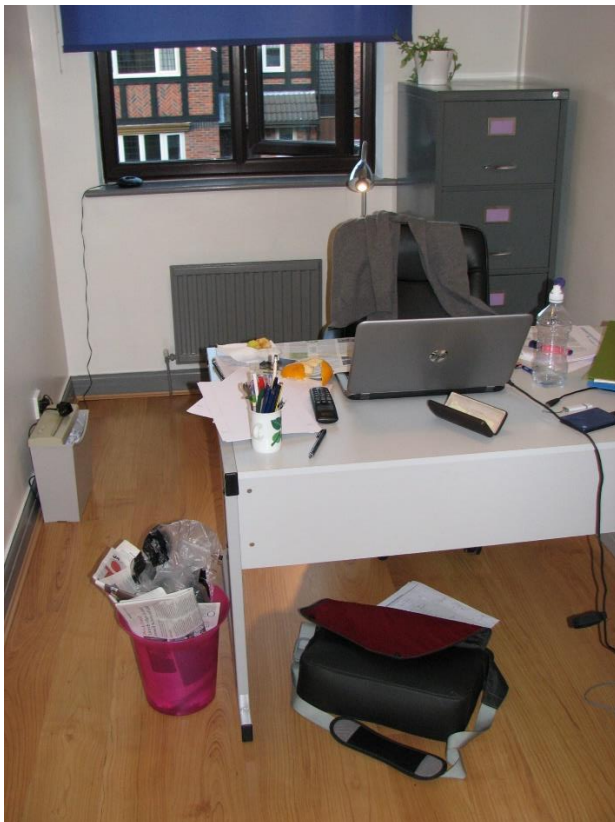
Response options

**something
else**

a habit

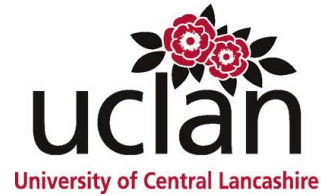
**carefully
considered**

Office scenario photographs





**Appendix 2: Pupil letter of introduction and
consent form**



*“An investigation into the relationship between
primary school staff and the
environmental behaviour of pupils”*

Hello,

My name is Joanne and I used to be a primary school teacher, but now I’m a student at the university. I’m keen to find out if you would like to help me with my project. All you would need to do is to answer a few questions that I will ask you during a short interview in school. These questions are about ways you use energy and resources, such as electricity, paper, card, and water, when you are in school. There are no right or wrong answers to the questions, I’m just happy to listen and learn about you and your school.

I’ll do my best to make sure that your responses will only be shared with people who are also involved with the project. They won’t know your name or which school you are from, so you are free to be honest and open.


Please remember that you can change your mind at any time and withdraw from the project. You can then choose whether you would prefer for me to save or delete any information that you’ve already provided.

The interview will take place during lesson time and there is no need to prepare or bring anything.

But first I need to check a few details:

	Yes
I am happy to take part in the research project	<input type="checkbox"/>
I know that I can change my mind about taking part at any time	<input type="checkbox"/>
I know that there are no right or wrong answers	<input type="checkbox"/>
I know that my name and school will not be shared	<input type="checkbox"/>
I am happy for the interview to be audio recorded	<input type="checkbox"/>



If you would like to take part, please **complete this form** and return it to  **together with the signed and completed Parent/Guardian consent form.**

Appendix 3: Parent/Guardian consent form

I give permission for my son/daughter (name)to participate in the research project conducted by Joanne Davenport from the University of Central Lancashire.

Name of Parent/Guardian

Signature of Parent/Guardian

Date

Appendix 4: Staff consent form

**I (name).....consent to participating in the
research project conducted by Joanne Davenport from the University of Central
Lancashire**

Signature.....

Date.....

Appendix 5: Report of findings

October 2019

Staff

From September 2018 to July 2019, data was collected from the school. This took the form of interviews with pupils and staff, as well as informal observations and gathering photographic and documentary evidence. I am very grateful to everyone involved, for their consistent support and warm welcome. I hope the following brief report provides some useful information as you seek to achieve your Silver Eco-school award.

Pupil participants:

The battery recycling point is familiar to most interview participants. Some may be unaware of the facility possibly because it is newly installed or they do not use many disposable batteries at home or in school and therefore they do not use the facility very often. Some pupil participants are unaware of the impact of discarding used batteries. Others are uncertain of what happens to the batteries, other than “they are taken by Miss”.

Regarding energy use, one pupil recognised that it is acceptable to use energy for school-related activities. Another pupil suggested that saving electricity is the key reason for switching off lights and computers. One pupil suggested that teachers save energy by providing one iPad per table. This is an interesting interpretation and may suggest the pupil is aware of devices requiring energy/electricity to charge them.

Interestingly, another pupil suggested that computers are switched off for privacy/security. Energy conservation was not offered as a possible reason. Another pupil cited an example of trying to copy the actions of a member of staff and tried to shut down the computer, but the procedure went wrong. They now leave this procedure to assigned monitors. This

suggests that they are attempting to copy an adult role model but realise there are peers who can carry out this task. Perhaps peers could share their expertise and assist pupils who are keen to save electricity? Interestingly, another pupil was keen to describe staff as wise and experienced role models. This praise could perhaps be further extended by encouraging peer support, therefore widening range of role models to include their peers.

Regarding lighting, although there is recognition of monitors assigned to switch off lights when necessary, a couple of pupils were doubtful that their peers remembered their responsibilities. This may be because a member of staff switches off lights or because they have not regularly witnessed their peers turning off lights or perhaps do not notice the action taking place. Perhaps consider a “last one out” rule for switching off the light. Perhaps regularly move/change notices (reminders to switch off) so they continue to act as gentle reminders.

In terms of water use, encouraging children to re-fill water bottles provides a clear message regarding re-use. One pupil was aware of over-filling and therefore wasting water. Some pupils mentioned taps being left on in the toilets. Others did not cite experiences of water wastage. Interestingly, no pupil participants mentioned the use of water butts in the outside area.

Some pupils view their responsibilities as an obligation or as an expectation. Other pupils note that they perform the actions without need for instruction or reminders. They are viewed as routinely performed actions or habits.

The pupils are aware of simple sustainable measures to conserve energy, such as wearing a jumper or closing a window if it's cold, rather than turning up the heating.

Regarding the use of resources, primarily paper and card, pupils mentioned boxes to collect paper for recycling. One pupil indicated that they sometimes forget the procedure. This may indicate it is not an embedded action.

Staff are seen as role models for conserving energy and reducing waste, but this is limited to teachers and the Headteacher. One pupil mentioned possibility of lunchtime staff performing sustainable actions. Another mentioned the teaching assistants performing the

actions. Perhaps pupils are unaware that Eco-school ethos is a whole-school approach. Interestingly, pupils did not mention the Eco-code or reference the Action Plan, although one pupil mentioned the aim of achieving the Silver award.

Other:

Walk to School seems to be a popular initiative and encourages an alternative to using the car when possible. I wondered whether the Eco-committee children monitor the long-term travel arrangements and if it has been determined why it is a popular initiative?

Staff participants:

All staff participants were aware of provision of recycling facilities in school and in some cases, suggested the need for further facilities. There is awareness of financial as well as environmental cost/savings regarding use of energy/reduction in waste and how this can be further improved.

There were some mixed messages regarding heating. Most staff suggested wearing a jumper or closing a window to conserve heat and others suggested turning up the heating. There is an awareness of limitations due to building design or the heating system itself and try when possible, to consider heat conservation. Similarly, there is awareness of financial considerations/implications regarding changes/upgrades to technology/infrastructure.

Some staff are aware of inconsistencies regarding switching off lighting, especially in areas other than classrooms. All staff are aware of expectations regarding energy use and regard switching off lights as generally habitual behaviour.

In terms of paper use, all staff are familiar with procedures for collection and recycling of paper and card. This includes the use of scrap paper trays and collection boxes in classrooms. Some staff suggest that there is excessive printing and photocopying which leads to spare copies. These are often recycled or reused.

Teaching staff mention reuse of many single-use materials and encourage pupils to replace lids to extend the life of resources.

Staff realise they often act as role models to pupils (and other staff) as they complete environmentally responsible actions. This is because they are often observed by the pupils, e.g. switching off lights, or they overtly demonstrate their expectations, e.g. showing where to deposit used card/paper. Equally, some staff indicated that they return partially used card to the stockroom or reuse lettering each year. These actions will not be as overt to pupils but demonstrate a desire to avoid waste.

The Eco-code and the Action Plan were rarely mentioned, yet there was staff consensus regarding sustainable behaviour. There seemed to be a recognition that the pupils are more involved in the overt environmentally responsible actions such as battery collection, reuse of paper, shutting down computers. Perhaps whenever appropriate, reinforce the importance of a concerted pupil and staff effort related to the development of embedded, routine actions linked to the Eco-code.

Many staff are aware of their own and others inconsistent approaches and are honest about this. Some staff would be keen to provide feedback regarding procedures and offer ideas regarding new approaches. Perhaps regularly ask staff to evaluate the facilities and procedures to gauge what is working and what could be developed. This may also support the work of the Eco-committee as they monitor energy use and feedback to staff and pupils.

Other:

Staff involvement in developing the outside areas and developing pupil interest in nature is another achievement. Perhaps staff and pupils could share this with the rest of the school, highlighting the facilities and commitment and inviting comment and feedback to reinforce and highlight whole-school participation and ethos.

Observations show that pupils and staff are involved in developing the school grounds. This includes growing plants, installing natural seating and collecting rainwater, as well as trying to encourage birds to visit. Facilities are available for collecting green waste as well as collecting items for recycling.

It is very clear from the responses from both staff and pupil participants, that there are many procedures in place which aim to encourage a more environmentally responsible approach to life. Teaching and non-teaching staff are committed to supporting a wide range of actions, from monitoring energy use, to encouraging wildlife into the school grounds. Reuse and recycling of paper is a common feature throughout the school. All participants were aware, to varying degrees, of approaches used to conserve energy by switching off lights and technology when not in use. This extends to many areas around the school and involves the use of designated roles and carefully placed notices, as well as relying on routines and habit.

Some elements of sustainable behaviour, such as reuse of paper, form an intrinsic part of school life, embraced by staff and pupils. Other elements include the development of the outdoor space, initiatives such as Walk to School, the introduction of natural products to support learning and efforts to conserve energy by switching off lights and computers when no longer needed.

Appendix 6: Staff information sheet

University of Central Lancashire, Preston. PR1
2HE

Tel: (Office) [REDACTED]
www.uclan.ac.uk

*“An investigation into the relationship between
primary school staff and the
environmental behaviour of pupils”*

Dear Members of Staff,

This leaflet is to let you know about my research so that, if you meet me, you will know something about what I am doing. Please feel free to ask me about the details.

Best wishes,

Joanne Davenport

What is the research about?

To find out more about ways in which primary school staff and pupils use resources and energy, I am asking several questions. These include:

- During the school day, do adults in school switch off lights, sort paper for recycling or add to the compost bin for example?

- If these actions are seen by the children, do the children also carry out similar actions?

Background to project

There is a lot of interest being shown in how we use resources, such as water and energy, during our daily routines. We know that sometimes we use them with care and sometimes they are wasted.

Although there are many important influences in a child's life, including family and friends, it almost goes without saying that school is also a key source of influence. So, it could be useful for educators and policy makers to learn more about the role that schools can play in fostering approaches to using resources, in preparation for the future.

My project aims to investigate any relationships between the environmental attitudes and behaviour of adults and pupils in primary schools.

I would like to learn more about everyday actions such as recycling batteries, reusing paper and switching off lights, that may be taking place in school. I think that this is a fascinating area of study and I am keen to find out more.

How will the study involve you?

I would like to talk with members of teaching and non-teaching staff, as well as children from Upper Key Stage 2. So I have prepared a set of questions and I will aim to spend a short amount of time interviewing you individually about use of energy and resources in your school.

Interviews

The interviews will be informal, and no preparation is needed. You can choose whether you decline to answer, or you may decide to provide more detail to a response. Most questions will be open-ended so that you will have a chance to put forward your views and experiences. Some questions will be closed which means you will be able to choose an answer from a given list. I will need to make notes during the interview to help me remember the information you have provided. For the same reason, with your consent, I would like to record the interviews as audio recordings, but I will understand if you prefer the recorder to be switched off.

Observation

It will be helpful if I am able to observe and jot down notes about everyday school life, because this will also give me an idea of how resources and energy are used in your school.

Written resources

It will also be helpful if I could look at any handbooks, pupil work samples, newsletters or notices that can provide insight into expectations regarding sustainability.

Anonymity

Each person who is interviewed will be assigned a code number to preserve their anonymity. Any identifying information will be destroyed at the data analysis stage.

Confidentiality

The data will be treated as confidential and as the researcher, only I will access this data. I will not disclose information relating to individual respondents.

Approval

The research project has been given ethical approval by the BAHSS ethics committee at UCLan.

Who is involved in the research?

Joanne Davenport

[Dr Candice Satchwell](#)

[Dr Alan Farrier](#)

Thank you for reading this leaflet

Appendix 7: Parent/Guardian information sheet



*“An investigation into the relationship between
primary school staff and the
environmental behaviour of pupils”*

**University of Central Lancashire, Preston. PR1
2HE**

Tel: (Office) [REDACTED]
www.uclan.ac.uk

October 2018

Dear Parents and Guardians,

This leaflet is to let you know about my research so that you will know something about what I am doing. Please feel free to ask me about the details.

Best wishes,

Joanne Davenport

What is the research about?

To find out more about ways in which primary school staff and pupils use resources and energy, I am asking several questions. These include:

- During the school day, do adults in school switch off lights, sort paper for recycling or add to the compost bin for example?
- If these actions are seen by the children, do the children also carry out similar actions?

Background to project

There is a lot of interest being shown in how we use resources, such as water and energy, during our daily routines. We know that sometimes we use them with care and sometimes they are wasted.

Although there are many important influences in a child's life, including family and friends, it almost goes without saying that school is also a key source of influence. So, it could be useful for educators and policy makers to learn more about the role that schools can play in fostering approaches to using resources, in preparation for the future.

My project aims to investigate any relationships between the environmental attitudes and behaviour of adults and pupils in primary schools.

I would like to learn more about everyday actions such as recycling batteries, reusing paper and switching off lights, that may be taking place in school. I think that this is a fascinating area of study and I am keen to find out more.

How will the study involve your child?

I would like to talk with children from Upper Key Stage 2 and members of teaching and non-teaching staff. During short, informal interviews, each participant will be asked several questions about use of energy and resources in school. No preparation is needed and there are no right or wrong answers.

Interviews

Most questions will be open-ended so that your child will have a chance to put forward their views and experiences. Some questions will be closed which means they will be able to choose an answer from a given list. I will need to make notes during the interview to help me remember the information that has been provided. For the same reason, with your consent, it would be helpful if the interviews are audio recorded, but I will understand if your child would prefer the recorder to be switched off.

Observation

It will be helpful if I am able to observe and jot down notes about everyday school life too, because this will also give me an idea of how resources and energy are used in school.

Anonymity

Each person who is interviewed will be assigned a code number to preserve their anonymity. Any identifying information will be destroyed at the data analysis stage.

Confidentiality

The data will be treated as confidential and as the researcher, only I will access this data. I will not disclose information relating to individual respondents.

Approval

The research project has been given ethical approval by the BAHSS ethics committee at UCLan.

Who is involved in the research?

Joanne Davenport

[Dr Candice Satchwell](#)

[Dr Alan Farrier](#)

Thank you for reading this leaflet

Appendix 8: Parent/Guardian letter of introduction



“An investigation into the relationship between

primary school staff and the

environmental behaviour of pupils”

**University of Central Lancashire, Preston. PR1
2HE**

Tel: (Office) [REDACTED]

www.uclan.ac.uk

October 2018

My contact details:

Your school contact: [REDACTED]

Dear Parent/Guardian,

I wondered if your son or daughter could help me with a project. I used to be a primary school teacher and now I am a research student at the University of Central Lancashire, with the Centre for Excellence in Learning and Teaching. I am trying to investigate the use of resources and energy in primary schools and I am looking for pupils who would be interested in joining in with this investigation.

To take part, your son or daughter would just need to answer several informal questions. This short interview would involve me asking the questions and would take place in school during the autumn term of this school year. Any information or data received will be treated in accordance with the University's Ethical Research Code. A copy of this is held at each school participating in the study. Each school will also have a copy of the questions I will ask. Ideally, the interview will be recorded using a digital voice recorder for note-taking purposes. Additionally, I would like to informally observe pupils and staff as they use resources and energy during the school day.

Your son or daughter's contribution will remain confidential and to retain anonymity a code will be assigned to each participant's transcript. Only those involved with the project at the University will have access to the interview transcripts.

Please remember that participation is voluntary, and your child is free to withdraw from the project at any time. They can then also choose whether to withdraw their contributions to the data. Please feel free to email me if your child has a change of mind or alternatively, they can let me know just before or during the interview.

My contact details are at the top of the letter and if you would like more detailed information about the project please contact me.

I hope you will be happy for your child to participate in this study. Their thoughts and experiences are very helpful and important. Please fill out and return the slip below to the school contact named at the top of the letter if you are interested.

Kind regards,

Joanne Davenport

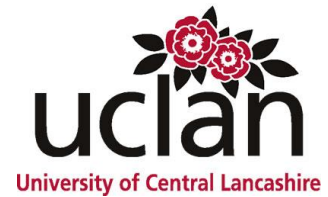
**I give permission for my son/daughter (name)to
participate in the research project conducted by Joanne Davenport from the
University of Central Lancashire.**

Name of Parent/Guardian

Signature of Parent/Guardian

Date

Appendix 9: Staff letter of introduction



“An investigation into the relationship between primary school staff and the environmental behaviour of pupils”

University of Central Lancashire, Preston. PR1 2HE

Tel: (Office) [REDACTED]
www.uclan.ac.uk

October 2018

Your school contact: [REDACTED]

My details:

Dear Member of Staff,

I am writing to ask if you would be willing to help with a research project I am undertaking. I used to be a primary school teacher and now I am a research student at the University of Central Lancashire with the Centre for Excellence in Learning and Teaching. I am investigating the use of resources and energy in schools by adults and pupils.

I am looking for teaching and non-teaching staff who would be interested in taking part in the project. You would just be asked several questions during a short and informal interview with me. This would take place in school and potentially repeated a year later. Additionally, I would like to informally observe pupil and staff use of resources and energy, such as lighting, water, paper and computers.

The interview will take less than half an hour to complete and you do not need to prepare or bring anything to the session. Ideally, the interview will be recorded using a digital voice recorder for note-taking purposes. Your contribution will remain confidential and to retain anonymity a number/letter code will be assigned to each participant's transcript, only those involved with the project at the University will have access to the interview transcripts.

The study will take place during the autumn term of this school year and information or data received will be treated in accordance with the University's Ethical Research Code. A copy of this is held at each school participating in the study.

Please remember that participation is voluntary, and you may choose to withdraw from the project at any time. You can also then choose whether to withdraw your contributions to the data.

My contact details are at the top of the letter and if you would like more detailed information about this project please contact me.

I hope you would like to participate in this study. Please fill out and return the slip below to the school contact named at the top of the letter if you are interested.

Thank you,

Joanne

**I (name).....consent to participating in the
research project conducted by Joanne Davenport from the University of Central
Lancashire**

Signature.....

Date.....

Appendix 10: Pupil interview

Pupil participant **ES/P/NUMBER**

I am interested to learn more about recycling and reuse of resources in schools, as well as ways in which water, electricity and heating are used. So, asking questions is a useful way of finding out more. There are no right or wrong answers to the questions and you don't need to give an answer to them all. Your answers are not going to be shared with anyone else in school, so please I hope you will feel able to answer honestly and freely. Just to check that I've understood your answers, I may ask you to explain or ask you a further question. Then, at the end of the interview there will be another chance for you to offer any further details or information.

Initial quick questions:

- *Can you tell me one thing about yourself?*
- *What kind of person would you like to be when you are older? Why?*
- *In school, try to name someone who you feel has a good influence on you (someone who guides, inspires, encourages you). Why do you think this?*
- *And what things do you think you are good at?*

Qualitative

SECTION 1 Perceptions of the environment and sustainability

Activity: Introduce **scenario (Resources: photographs of office)**

Show photographs [office setting with paper and card strewn over desk surface, overflowing paper bin, paper shredder, open window, radiator, desk lamp switched on, jumper over back of chair, apple core/banana skin on the table.]

Explain that *Tom works in an office. Tom left his office in a hurry last night and this is how he left his desk.*

So, he needs to spend a few minutes tidying up before he is ready to start work.

Try to imagine you are Tom. What do you think Tom might do with the newspaper, the paper in the bin, the banana skin and the apple core? What else do you think Tom might do in the office before he is able to start working?

After a while, Tom starts to feel cold while he's sitting at his desk. What do you think he might do to feel warmer?

Soon it's time for dinner and Tom is looking forward to eating his packed lunch and having a chat with his friends. He picks up his bag and leaves his office. What else do you think he might do before leaving his office?

Q1 (**Resources:** cards showing response options) In school, if you leave a room and switch the light off, how would you describe this action? Would you say (and choose any that seem to best fit) the action was:

A habit

Carefully considered

Just remembered at the last minute

Something else

Q2 What is the reason for your choice of answer?

Q3 And carrying with this theme, **who** is likely to have seen you switch off the light?

Q4 Why might that be?

SECTION 2 Range of environmentally responsible activities taking place in school, including forms of energy/resource consumption/use

The following questions aim to tell me three things:

- *Ways in which electricity, paper and card (and many other resources) are **generally used** in school*
- *Ways in which **you use** these in school*
- *Ways in which **you have seen** these used in school*

Paper and card: I would like you to think how paper and card are used in school. So, say for instance, paper from the printer that has been printed on but is no longer needed.

Q5 So, what happens to paper and card in your classroom when it has been used but is no longer needed?

*Q6 Can you describe when **you** have done this with paper or card when you are in school?*

Q7 Have you seen anyone else do this?

Technology: Looking around a modern school, it is easy to find technology and electrical equipment almost everywhere.

Q8 So, thinking now about technology that is used by you in school, such as the interactive whiteboards, laptops or computers, can you tell me when they are switched on, when they are shut down and when they are left to go to sleep (or into standby)?

Q9 And when you are in school, can you tell me who does this?

Q10 Also, some types of equipment need batteries, so when you are in school and the batteries run out of power or energy, where do the old batteries go?

Q11 Can you describe any occasions when **you** have done this with batteries in school?

Q12 Do you know of any times when someone else in school has done this?

So, we've talked about some of the ways that energy, resources and equipment are used in your school. Carrying on with this theme,

Q13 In school, do you think you carefully use electricity, water, paper, paint and card, for example?

Q14 Why might this be?

Q15 Thinking more about this, **how often** would you say you do this?

The focus now is on what you have seen taking place in school.

Q16 (**Resources:** response option cards) So, which of these have you **seen** taking place in school?

electricity being wasted

electricity not being
wasted

heating not being
wasted

resources not being
wasted

heating being wasted

resources being wasted

water not being wasted

Q17 For each one you chose, please tell me whether it was an adult or a child doing this in school.

Q18 How often would you say you see these things happening?

SECTION 3 Approaches to learning about, experiencing or demonstrating environmentally responsible actions in school, e.g. by observation, practice.

The focus for this section is whether or not actions have been observed or seen by you.

Think back to any times you think you have seen other people in school carefully using electricity, water, paper or card for example. I'm keen to know more about this, so,

Q19 Why do you think they did it? Remember there is no right or wrong answer, it's just what you think.

(if applicable)

Q20 If you have seen someone in school switch off a light for example, how often have you seen them do this?

Q21 And, if you have seen someone in school switch off a light for example, did they explain why they did this or not?

Q22 If yes, what did they say?

SECTION 4 Barriers and drivers, including school policy and actions of adults and pupils

The focus for this final section is whether adults in school influence your actions.

Q23 When you see an adult in school switching off a light, putting paper in the recycling bin or turning off a dripping tap for example, does this mean that you will try to do something similar?

Q24 If yes, why?

Q24 If no, why?

Q25 In school, do you have a chance to give your views about saving energy and avoiding waste?

Q26 Can you tell me more about your answer to this question?

Section 5

Now that you have given your response, is there anything else you would like to tell me?

THANK YOU FOR YOUR TIME AND FOR SHARING YOUR THOUGHTS

Appendix 11: Staff interview

Staff participant **ES/T/NT/NUMBER**

I am interested to learn more about recycling and reuse of resources in schools, as well as ways in which water, electricity and heating are used. So asking questions is a useful way of finding out more. There are no right or wrong answers to the questions and you don't need to give an answer to them all. Your answers are not going to be shared with anyone else in school, so please I hope you will feel able to answer honestly and freely. Just to check that I've understood your answers, I may ask you to explain or ask you a further question. Then, at the end of the interview there will be another chance for you to offer any further details or information.

Qualitative

SECTION 1 Perceptions of the environment and sustainability

Activity: Introduce **scenario (Resources: photographs of office)**

Show photographs [office setting with paper and card strewn over desk surface, overflowing paper bin, paper shredder, open window, radiator, desk lamp switched on, jumper over back of chair, apple core/banana skin on the table.]

Explain that *Tom works in an office. Tom left his office in a hurry last night and this is how he left his desk.*

So, he needs to spend a few minutes tidying up before he is ready to start work.

Try to imagine you are Tom. What do you think Tom might do with the newspaper, the paper in the bin, the banana skin and the apple core? What else do you think Tom might do in the office before he is able to start working?

After a while, Tom starts to feel cold while he's sitting at his desk. What do you think he might do to feel warmer?

Soon it's time for dinner and Tom is looking forward to eating his packed lunch and having a chat with his friends. He picks up his bag and leaves his office. What else do you think he might do before leaving his office?

Q1 (Resources: cards showing response options) *In school, if you leave a room and switch the light off, how would you describe this action? Would you say (and choose any that apply) the action was:*

A habit

Carefully considered

Just remembered at the last minute

Something else

Q2 *What is the reason for your choice of answer?*

Q3 *And continuing with this theme, **who** is likely to have seen you switch off the light?*

Q4 *Why might that be?*

SECTION 2 Range of environmentally responsible activities taking place in school, including forms of energy/resource consumption/use

The following questions aim to tell me three things about the use of electricity, water, heating and equipment in school:

- *Ways in which they are **generally used** here in school*
- *Ways in which **you use** them here*
- *Ways in which **you have seen** them being used in school*

Paper and card: I would like you to think how paper and card are used in school. So, say for instance, paper from the printer that has been printed on but is no longer needed.

Q5 So, what happens to paper and card in school when it is no longer needed?

Q6 Can you describe any occasions when you have done this with paper or card in school?

Q7 Have you seen anyone else do this?

Technology: Looking around a modern school, it is easy to find technology and electrical equipment almost everywhere.

Q8 So, thinking now about technology that is used by you in school, such as the interactive whiteboards, laptops or computers, can you tell me when they are switched on or switched off or left on standby?

Q9 And can you tell me who switches these on, switches them off or leaves them on standby?

Q10 Also, regarding equipment that uses batteries, when you are in school and the batteries run out of power, where do the old batteries go?

Q11 Can you describe any occasions when you have done this with batteries in school?

Q12 Do you know of any occasions when someone else in school has done this?

So, we've talked about some of the ways that energy, resources and equipment are used in your school. Continuing with this theme,

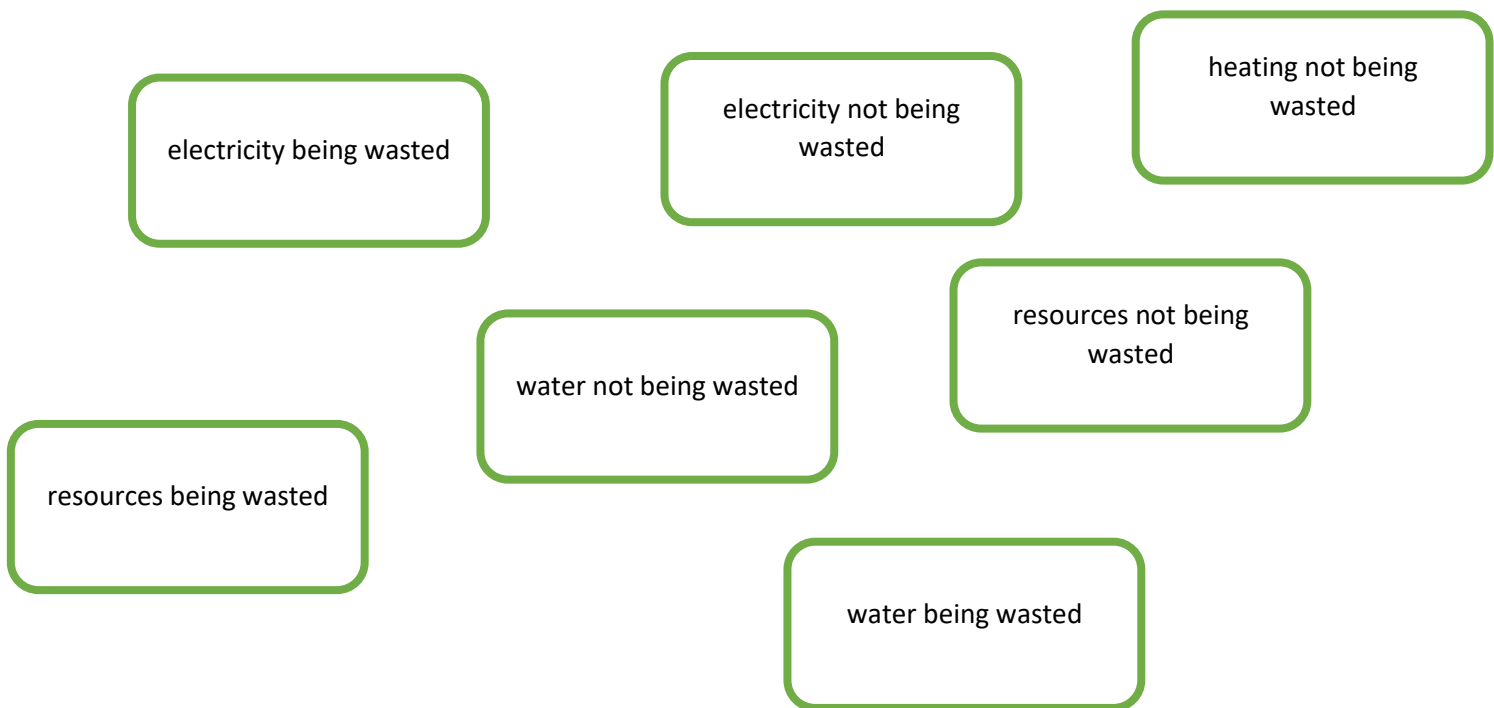
Q13 **In school, do you feel you carefully** use electricity, water, heating and resources?

Q14 Why might this be?

Q15 Thinking more about this, **how often** would **you** say you do this?

The focus now is on what you have observed taking place in school.

Q16 (**Resources:** response option cards) So, which of these have you **seen** taking place in school?



Q17 Please indicate whether it was a member of staff or a pupil performing these actions.

Q18 How often would you say you see these things happening?

SECTION 3 Approaches to learning about, experiencing or demonstrating environmentally responsible actions in school, e.g. by observation, practice, instruction.

The focus of this section is the observation of actions by pupils.

Q19 *Thinking about your actions, such as switching off a light etc. are these actions **observed** by any children?*

Q20 *If yes, can you describe any of these occasions please?*

Q21 *If no, why might this be?*

SECTION 4 Barriers and drivers, including school policy and actions of adults and pupils

The focus of this section is whole school events/actions/ethos.

Sometimes a school building and grounds are designed to conserve energy and use resources carefully. For example, some schools have double glazing, others have recycling bins.

Q22 *Has an energy saving campaign, special “Green” week or something similar ever taken place in school?*

Q23 *If yes, could you summarise what was involved please?*

Q24 *Is there a school policy regarding sustainability (conserving energy and reducing waste)?*

Q25 *Are sustainability measures evaluated?*

Q26 *If yes, what are the outcomes of monitoring please?*

Q27 *Do you have an opportunity to provide feedback on sustainability measures?*

Q28 *If yes, have you personally provided feedback?*

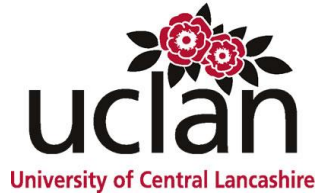
Q29 *If yes, would you be willing to share this feedback with me please?*

Section 5

Q30 Is there anything else you would like to add or include?

THANK YOU FOR YOUR TIME AND FOR SHARING YOUR THOUGHTS

Appendix 12: Questionnaire



Hello,

I know that [REDACTED] is keen to look after the environment, save energy and avoid wasting resources.

Last year, I took photographs around the school. I would be very grateful to learn more about what you think of them.

There are no right or wrong answers. Just be honest! No-one will know who wrote the answers because you don't have to give your name. In other words, your answers will be anonymous.

Thank you,

Joanne

(UCLan researcher)

Please **tick** this box to let me use your anonymous answers

Please **tick** this box to show you know that you do not need to answer all

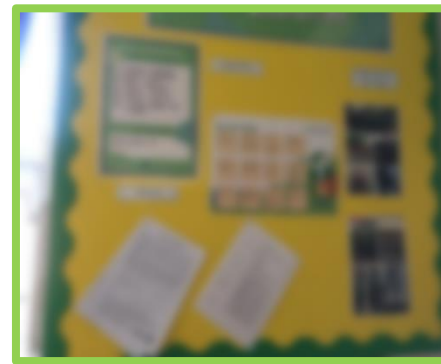
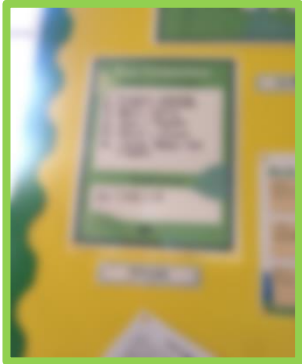
the questions

Last year, I took photographs around the school. I would like to learn more about what they show. So, please look carefully at each photograph and try to answer these questions for each one. Remember, there are no right or wrong answers, just tell me what you think.

- What do they mean to you?
- Why does school have them?
- Who uses them?
- How do you know?



- What does each photo mean to you?
- Why does school have them?
- How do you know?



- What do they mean to you?
- Why does school have them?
- Who uses them?
- How do you know?



- **What do they mean to you?**
- **Why does school have them?**
- **How do you know?**



Is there anything else you would like to tell me?

Given all the pressures and demands of primary school life, how do you encourage the children to:

- be aware of the facilities
- use the facilities
- help the pupils understand why they have been provided?

Thank you

Please return to:

Appendix 13: Transcript of a Pupil interview

So try to imagine you were Tom. What would you think that Tom might do with the newspaper?

Erm, maybe like recycle it.

Thank you. What might he do with the paper that's in the bin?

Erm, maybe like reuse it or use it for something else.

Okay. And what he might do with the banana skin and this apple core and the, there's the banana skin there, mouldering and the satsuma skin, what might he do with those?

Maybe put it in the bin.

So what else do you think Tom might do in the office before he's able to start working? Have a little look.

Probably like tidy it so that he doesn't lose anything.

[laughs] Tidy it so he doesn't lose anything. Okay. And then after a while Tom starts to feel a bit cold, he's a bit cold because the window's open, what do you think he might do to feel warm?

Well he could first close the window and then put on the radiator.

Close the window and put on the radiator, thank you very much.

Because if the window's open, because if the window was open it would have just like wasted all the.

After a while Tom starts to feel cold sitting at his desk. Ooh we've just said that haven't we? Sorry. Soon it's time for dinner and Tom is looking forward to eating his packed lunch and having a chat with his friends, picks up his bag and he leaves his office, what else do you think he might do before leaving his office?

Erm, turn off the radiator and like close his laptop to save him.

Thank you. So I have some cards to show you now. I'd like you to think if you're in school and you left a room.

Yeah.

And switched the light off.

Yeah.

How would you describe this action? Would you say it's a habit, carefully considered or just remembered at the last minute or something else?

Erm, usually it's a habit because normally I, I'd check if everything's turned, all the computers are turned off in the ICT Suite.

Ah.

So I think it's a habit[?].

Thank you and that's good because you've answered question two, what's the reason for your choice of answer? And carrying on with this theme, who's likely to have seen you switch off that light?

Erm, probably my friends because normally they do it sometimes.

I see. So that answers question four, why might that be?

Yeah.

So your friends, thank you. So Section Two. I'm going to be asking you some questions that are going to aim to tell me three things, ways in which electricity, paper and card are generally used in school.

Yeah.

Ways in which you use them in school and ways that you've seen them being used in school. So there we go. So starting with paper and card, I'd like you to think about how paper and card are used in school, so say for instance paper from the printer that's been printed on that's no longer needed, what happens to paper and card in your classroom when it has been used but it's no longer needed?

Erm, like normally it's just, erm, erm, children just put it in the bin but I normally put it in the recycling.

Ah, is that in the classroom then?

Yeah, there's a small paper recycle bin.

I see, is there one in every classroom do you know or is that just in your classroom?

I don't know, but I think so.

Thank you. Have you seen anybody else do that with paper and card while you're at school?

Yeah.

Who've you seen?

My friends and, yeah.

[laughs] So thinking about technology now, that's again used by you please in school.

Yeah.

Such as the interactive whiteboard, laptops, computers, anything really that's technology, can you tell me when they're switched on, shut down or put into standby?

Erm, well normally the computers just, erm, are like, put the, put it, are on sleep mode so like but at the end, erm, at the end of the day I just turn, I turn them off.

Ah right, thank you. So that's interesting because question nine says and when you're in school can you tell me who does this? So you, so you switch them off do you?

Yeah, I, I switch off the board at the end of the day as well, just to save electricity.

Ah right, that's, you switch that off to save electricity.

Yeah.

Ah, thank you. Now some types of equipment need batteries, so when you're in school and the batteries run out of power or energy, where do the old batteries go? Do you know, or?

Um. No, I don't know.

Oh right. Again it's not a test or anything like that.

No.

It's just in case anything happens to them. Okay, so we'll leave those two questions then if we're not sure what happens to batteries in school. So we've talked about some of the ways that energy, resources and equipment are used in your school, so carrying in with this theme, question thirteen. In school do you think that you carefully use electricity, water, paper, paint, card for example?

Well yeah, because I do use a paper, paper a lot to like make things, and cardboard.

And why might that be? Why do you do that?

Well I just like building things and like, yeah.

And why do you feel that you use electricity, water, paper, paint, card, why do you feel that you use them carefully?

Erm, just to save it, like later for different children to use it.

Ah, for different children to use, that's interesting. And thinking more about this, how often would you say that you do this?

Erm, yeah, normally I, I, er, normally I do play with the card and paper, yeah.

And so is it something that you do every time you use these things or is it something you sometimes do or?

Sometimes.

Sometimes, okay. So the focus now is on what you've seen taking place in school, okay. So I've got some resource cards to have a look at, not cards, label. And you don't have to go through every one but just have a little look at those and for each one that you choose can you tell me whether it was an adult or a child that was doing this in school please?

Erm, well once I saw water being wasted because like once I went to the toilet all the taps were on.

I see.

Literally all. [laughs]

And is, are there any other occasions that you've seen, erm, heating or electricity or resources or water either being wasted or not being wasted?

Electricity normally because like, normally in class we will always have the lights on, even if it's quite sunny and.

I see, so who do you think switches those on then, is it an adult or a child?

An adult and normally Y has the laptop always on, open.

And why might she leave the laptop on?

Um, to like look up things, like.

[laughs] And again, how often would you see these things happening, is it something that happens regularly, sometimes?

Well the laptop and the lights I see a, regularly but the taps and I, I just saw once.

You just saw that once. Just as well it was once isn't it, all the taps running? [laughs] So thinking about the next section now this focus is whether or not actions, again it's a little bit more about what's been observed by you because obviously your observations are really important for, for me to, to learn more about. So thinking back to any times you think you've seen other people in school doing any of these, either carefully using electricity or carefully using heating or carefully using resources or water, can you tell me a little bit more about that?

Yeah. So like, erm, normally Miss, Y asks something to turn off the heating.

Ah.

Either because it's too hot or we open the windows.

I see.

Erm, erm, elec, electricity not being wasted is when like, erm, I turn off the board and, I don't know what to say about the water but.

That's fine, yeah. Everything is of interest to me, so don't worry that you think you've got to answer everything, it's, that's fine. So when you've seen the heating being turned off.

Yeah.

And sometimes you said sometimes the window's open, why do you think the heating's turned off, why not just open the window every time?

Erm, it's so that we don't waste any like, I mean don't cause more pollution.

Right, that's interesting, thank you. And if you've seen someone in school switch off a light did they explain why they did that?

No, not really.

[laughs] Do they just do it though?

Yeah.

They just do, okay. So section four. The focus for this final section is whether adults in school influence your actions.

I don't get it.

[laughs] And it says here when you see an adult switching off a light or putting paper in the recycling bin or turning off a dripping tap, does this mean that you'll try and do the same thing in school?

Yeah.

[laughs] Do I sense a but coming?

Um.

And if yes, why?

Erm, like to, to help and that, like so that people don't, like one person doesn't, alone doesn't have to do the whole school.

Ah, that's an interesting answer. And if you've seen adults doing these actions, whatever it might be, is there anything that stops you from wanting to? You want to do it but it's, you can't do it, what might stop you from doing it?

Maybe like when someone's in the class and I want to turn off the light but they say like no, because, because they said they're like scared of the dark when it isn't even really dark.

I didn't hear that, sorry.

So like when I, when I want to turn off the light in the class but someone is in there, like a child, they see they're scared of the dark really, which isn't really dark.

[laughs] It's too dark, that's interesting. Well it's honest isn't it?

Yeah.

So that answers that question then, if yes, why, if no, why?

Yeah.

Yeah. Question twenty five, in school do you have a chance to give your views about saving energy and avoiding waste?

Yeah, because like I'm with, I'm a school leader so I have to like basically help everybody with computers, so like I have to fill the paper in the printer and do things like that.

I see, I see, so when you're filling up the paper and you're helping people when do you have a chance then to give your views about?

So we're doing this, erm, assembly about, about like internet safety, so that's kind of what we can do.

Oh yes, that's important. So is that something that you've offered your views on then?

Yeah, yeah.

I see, so that's really important. Now that you've given all your super responses, is there anything else you'd like to tell me about heating and electricity and waste, resources?

Erm, well resources being waste is kind of a common one, because like normally everybody would put it in the normal bin, nothing's recycled.

Yes. Ah that's interesting, and when you say everyone would put it in the normal bin, not the recycle bin.

Yeah.

Is that, that's at school?

Yeah.

Ah, right. So you have your recycling bin in the class.

Yeah.

You said but.

Yeah, the normal bin, there's a small normal bin in the class as well.

I see, and why would people put it in there, why would, do you think?

I don't know, normal, I don't think they like, erm, erm, I don't know how to explain it, erm. Like no-one would, erm, mind about, like you, where you put the paper.

I see, and when you see no-one would mind, who do you think, who do you mean?

I don't know, there's like, sometimes I do it but.

Yeah. It's just a thought.

Yeah.

I see, oh so that's an interesting thought, yeah. So that's interesting isn't it, if you got two bins, how you make the decision?

Yeah.

With paper, where to put it.

Yeah.

Interesting. And what would you generally do?

Normally I'd put it in the recycling.

Normal, and sometimes it goes in the other bin?

Yeah.

Interesting.

Because, erm, do you know when the heating's been wasted?

Um.

In year four we learnt about, erm, the greenhouse effect.

Oh yes, yeah.

So that's kind of to do with heating being wasted because it's on for no reason when the window's open.

Yes, that's a very interesting point, very interesting point. Well thank you so much for your time and for sharing your thoughts, that was really, very, very helpful.

[interruption]

Thank you. Can you say thank you to X for me, Thank you.

END OF INTERVIEW

Appendix 14: Transcript of a Staff interview

So I'm going to start off with a scenario and I'd like you to imagine that you are Tom, Tom works in an office and this is how he's left his office, when he left.

Right.

The night before. So imagining you're Tom.

Right.

He needs to start tidying up before he's ready to start work, so what do you think Tom would do with the newspaper, the paper in the bin, the banana skin and the apple?

Right.

What would, what might Tom do with those?

Right, well the newspaper would obviously go in the paper recycling, we would have here. These would be, go in the composter, the apple and the banana skin and then these will go in recycling as, as well because we have one for pens pencils and all that, that would go in the plastics recycling if it was empty, if it wasn't we wouldn't use it the day after, we'd empty that out and put, and put that in the plastic recycling as well, same, same as paper in the bin paper on the floor, that would that go in the recycling as well.

Thank you very much.

So most of that would all be recycled.

Right, thank you very much. So after a while Tom starts to feel cold while he's sitting at his desk.

Yeah.

What might he do to feel warmer?

To feel warmer?

Um.

Well if it was people in the, in the office with us they would ask us to put the heating on, if the heating wasn't on, or we have portable heaters that, that they also, which we also use which can just warm one room up rather than warming the whole school up, well that would be, I would imagine to be, if that's just the smallest room, we would just plug a portable heater into, into that room rather than put the whole heating on for the school.

Lovely.

Okay?

Thank you very much. So soon it's time for dinner, Tom's looking forward eating his packed lunch, having a chat with his friends, he picks up his bag, leaves his office, what else might he do before leaving his office?

Might he do?

Um.

Well I want to say he would have cleaned, cleaned up a bit but, really leave it like that but if he left his, his office, wouldn't, I wouldn't be pleased if that was me coming to find that somehow, I wouldn't.

[laughs]

Er, he'd, he'd probably put his, his jacket on there when he left his office, picked his spectacle case up, took, took that with him, I would imagine. I don't know what else he would do. Is this his bag on the floor?

Yeah.

He'd probably take that wouldn't he? Probably pick his papers up and take the bag with him as well and that's, that's about it I would have thought with that.

Thank you very much. So.

Ah hum.

Moving on to thinking about resources now.

Resources, yeah.

So if you're in school and you leave a room.

Yeah.

And you switch the light off how would you describe that action? Would you say it's a habit, carefully considered, just remembered at last minute or something else?

That should be a habit that.

Thank you.

Yeah, definitely.

And what's the reason for your response?

Sorry, for that? Energy conservation like that, yeah.

And who's likely to have seen you switch off the light in the school?

What time was it?

Any time you like.

Any time I like?

Yeah.

Probably the, the children more, more than not because we try to get the children involved in the same eco-friendly, because we have like an Eco-Committee at school which I, that is one of the main things that they have, erm, well energy conservation, switching lights off, same, we don't switch all

the lights off, so in school now when we come in at half six. We used to, erm, we just put the corridor lights on now and we, the teachers, as they come in, they put their own classroom lights on and turn them off when they leave or should do. [laughs] Yeah, yeah. We also have, erm, an energy file as well, should say, which we, I take all the meter readings once a month and we have like a, an energy log, which also the eco, the Eco-Committee monitors that and also when they come in and obviously read the meters that's when we get, we're at efficiency eighty for the school.

Ah, oh right.

Yeah.

Right, yeah, thank you.

Which is quite good, it's like eighty two percent of it at the moment, it's something the, you know, where X sits in the office

Oh yes.

It's on the wall in there, you want to have a look at that.

Yeah, have a look, I should, that.

Yeah, [laughs] it's the same as one that if you're selling a house.

Yes, I've seen them up there.

If you've seen it with the bars and that, it's exactly the same as that.

Yeah, it, wow.

Yeah.

So that's worth celebrating then isn't it?

Yeah.

Well done.

Okay, right.

So section two, and what you'll find is because this is what I'm using with, with everyone, some of the questions you might think I've already answered that.

Right.

So I'll try, I'll try and avoid sort of saying that.

Okay.

But you might find there are some similarities. So thinking about paper and card in school now.

Yeah.

Say paper that's been printed on one side but it's no longer of any use, what happens to that paper and card in school?

It depends, if it's an uncrinkled paper and there is one side blank that can, we have a box that, that gets, it's put into a box for re, reuse for the children.

Oh right.

Provided there's no sensitive information on that but, so that they can actually, rather than getting a clean piece of paper, they use the reverse side. That's about all I can say about, about that, yeah.

Thank you. And have you ever put the paper or card into this recycling?

I have, yeah, yeah, because I find, well when I'm cleaning the rooms at night, probably be the night, a lot of the time paper gets left on the table or on the floor or whatever, so we collect it up and we have like a, like a tray, one upstairs, one downstairs, which is for like reusable paper, and so they use that and when, when the children, especially like at wet playtimes and that, so instead of using obviously as I said before the new paper, they can use, use paper that's only been printed on one side.

Wonderful.

Yeah.

Thank you very much. So, erm, moving on to technology and electrical equipment.

Yeah, yeah.

So thinking about any technology that's used by you in school.

Yeah.

Can you tell me? I think I might know the answer to this one.

[laughs]

Who switches these on and switches them off or leaves them on standby?

Um, do you want how it's supposed to be or how it does sometimes, how it works sometimes?
[laughs]

Anything you like. [laughs] Anything. I'm not judging, so yeah.

Yeah, I normally switch on the bare minimum in the morning and the teachers generally switch them on during the day and supposed to switch them off when they're finished but I switch everything off, off at night. I go round all the classrooms and once all the teachers have left, they've done it, I normally have forty five minutes to go round the whole school and make sure all the windows are closed, all the, erm, the laminators, printers and that are switched off, or on standby, sometimes we have to leave the printers on standby because we have what we call a remote access.

Oh yeah.

So, but if the teachers want to do any work from home, they take, they all, they have their home laptops and they can get on to the school website, not from home.

I've heard of this, yeah, yeah.

And use the printers that's, they're in school, they can print them from home, so we've got to leave the printers on standby.

Wow, I didn't know you could do that.

But it just saves them having to be in school all the time, yeah, it's really good, yeah, yeah.

Right, so that's one reason then isn't it? So it's access from home but what would you say the other reasons, it's not a question on here but.

Yeah.

What would you say might be any other reason then why you're? Shutting windows I can understand because it's obviously security.

Yeah.

What would you say are any other reasons for switching off the computers or?

Save life, life expectancy. Obviously the longer it's on, because a lot of the machines are like times and the, the, when it's actually hours that they're switched on and they have to be like refurbished after so long, so if you switch them off it doesn't count the, the hours, the life expectancy is longer, plus the energy consumption that they use as well that'll cut down as, as well, yeah, yeah.

Right, thank you very much.

Yeah.

I'm learning loads you see.

[laughs]

So thinking about batteries.

Yeah.

And any equipment that uses batteries.

Yeah.

When you're in school and the batteries run out of power.

Yeah.

Where do the old batteries go?

They have a battery recycling station, we used to have one in the ICT where the printer is but now X's got like a big, big battery, that's down in the corridor, corridor.

I saw that, yes, yeah.

Yeah, and they all recycle the batteries into there now, yeah.

Thank you. So have you used the recycle?

Yeah, I use it all the time, yeah.

Excellent.

Because I generally have to change the batteries in, in all the clocks.

Oh yeah. [laughs]

As well, yeah, so I kind of generally try and recycle more batteries than anybody else.

Oh yeah, there's a lot of clocks isn't there?

If you want, yeah, there's a clock, clock in each room all the way round the school, quite a few batteries.

I've got trouble remembering one. [laughs]

[laughs]

A whole building's worth.

Yeah, yeah, there's, there's quite a few involved when you think about it, with the amount that there is.

Yeah, yeah, I do, yeah.

Yeah.

Now thinking about it, yeah.

Yeah.

So do you know of any occasions when someone else in school has used the battery recycling?

Yeah, yeah, the children do and the teachers do, if they have, erm, they have, going to say, lots of them have torches, believe it or not, and calculators.

Oh yeah.

Yeah, you know, the, recycling the penny batteries as well as normal batteries.

Course, yeah.

And that sort, yeah, they all have their own personal pieces of equipment, so I'll, I'll generally provide them with a battery and they'll, they'll do the rest but they do the recycling as well, yeah, yeah, so every, everybody in school really, yeah.

So question thirteen, continuing with use of energy and resources of equipment, do you feel in school that you carefully use electricity, water, heating and resources?

Yeah, we generally do, yeah.

And so.

We don't like to waste elec, waste water, the same, same with electricity and heating, we kind of monitor the heating, well I monitor the heating by switching the boilers up and down until someone complains they're cold and then having to switch them back on again, erm, or heat the room individually, as I said.

Ah right, so do the rooms have their own thermostats or?

Yeah, yeah.

Yeah, but is it generally controlled from a central?

You have a main control from, there's a thermostat in the corridor but what overrides that is, is each room has, has their own thermostats as well, so they control them, they all have blowing heaters, these have got thermostats on the side.

Ah right.

But the ones in the classroom, you'll find there's like a separate thermostat on the wall but these are like combined in with the.

That's handy isn't it? Yeah.

In with the heater, yeah, yeah, but they, they all have thermostats, yeah, so they can individually control each classroom, yeah.

That makes sense doesn't it?

Yeah.

Yeah, yeah, thank you. So is any?

Apart from that, the only thing that's different to that is in the hall we, we have, we've had like a two speed control put in the hall.

Oh right, what?

Well what used to happen is if it was cold and we put the heater on, on high speed then we had assembly, they found they're quite noisy.

Oh yeah.

And they, and the teachers couldn't be heard, what they were saying in assembly, so we could, we put a control in when we could lower the speed.

So it's still.

Still, still warm but at a lower speed so it's quieter, yeah, so I think it would be heard what's being heard.

That's practical, very practical, very practical.

Yeah, yeah.

Yeah, yeah.

Yeah.

So thinking about the, like I say the, generally, it's very generally wasted or saved on here.

Yeah.

Do you, would you say generally speaking whether any of these are something that staff do or something that pupils do?

Er, mostly staff I would have said. Anything, yeah, that's staff. Resources is more, is more children I would have said because it's, it's up, it's up to them to, like the paper and pens and stuff like they, they put all that stuff in the bin when it's not, when it's not required and that, so I would say the electricity, heating and water is down to the staff. I mean maybe the water might be, you know, turn, learning how to turn taps off when we've finished, the, the children and the resources probably children I thought, everything else will be the staff I would say.

Thank you very much.

Um.

So I'm thinking now about approaches to learning about being environmentally responsible, so think about whether it's by observation.

Um.

Or by practice or by instruction, so I'm thinking now about what the children might have seen.

Yeah.

So question nineteen. Thinking about your actions, such as switching off a light or anything else the children might see you doing.

Yeah.

Are these, or may have seen you do, are any of these actions observed by children, do you think?

Yeah, that's, that's generally the job of the Eco-Committee because they have, I think it's two members from each class, so that's a couple of members all the way through the school and they would obviously, their, that's one of their jobs to monitor that and that so, erm, they, they would observe that and they will pass that down through rest of the school, because they have Eco-Committee meetings and then they have their own noticeboard in the hall.

Yes, I'm looking forward to seeing that.

And that, yeah, so any observations or recommendations that they have will all go, it'll, it, on the first instance it'll probably go into the newsletter from school which goes out once every Friday, that goes online and also paper copy, so anything that, they'll go up to the office with their suggestions and X will put it into the newsletter and that and then it would also go on the Eco-Committee's noticeboard as well, so yeah, [laughs] yeah.

Goodness.

So everybody knows.

They do. [laughs]

Yeah.

And again, you've already answered this, can you describe any, are there any occasions that this happens? So thank you.

Yeah.

Section four now, I'm thinking of what helps and what doesn't help to.

Right.

Create these actions, so I'm thinking about whole school events, and the ethos of the school as well.

Yeah.

So do you know whether there's ever been an energy saving campaign or green week or something similar in school?

I should, erm, not for a while but I think there was one last year, when, when they had that, yeah, and they had people in, into the hall and they, the parents were invited, so I think it was a case of trying to, erm, also get the parents to, so they would do it at their home, like, not only school but they did like, like an awareness presentation, yeah, last year, yeah, yeah.

[laughs] Thank you, and again there you've answered that, could you summarise what was involved? So thank you.

Yeah, yeah.

And do you know whether there's any sort of policy regarding conserving energy or reducing waste? Is it a school ...[17.21]?

There, there is, I think the Headmaster's got that in, in his office, I'm sure there is, yeah. There is like an eco-policy that we put together, yeah.

That would make sense wouldn't it? Thank you.

Yeah, yeah.

And when you've got these measures, whether it's, you know, your new battery recycling or, you know, as you said about not switching off the lights until the staff come in.

Yeah.

All changes like that.

Yeah.

Do you know whether these sort of measures are evaluated? Is it something that you get a chance to say this is working or I don't think this is working?

Yeah, the way we do that, as I say, you know, when we take the monthly electricity meter readings?

Um.

We, it can tell month by month exactly how much electrics we use, now that just won't be lights, that'll be everything else electrical but lights is obviously part of that, erm, so we've, that's the way we can monitor if it's working by the amount of electric that we're using per month and it has been coming down slowly. [laughs] And, I think it was looking at for a change all the lighting for LED lighting.

Oh yeah, yeah.

For school but it's a bit cost, it's a.

It's that initial outlay isn't it?

It's an initial cost. It is cheaper to run.

Really? Is it?

Oh very much cheaper, yeah, if you got LED lighting, yeah, it's very much cheaper.

That's interesting.

But the initial cost is high, it is.

Yeah, so it's waiting until it pays for itself.

Well yeah, it will pay for itself in like twenty, twenty five years they reckon but it's like, but schools don't have that much money these days, as, as they used to have, erm, and it's, every, everything is to do with cost, so we just do what we can for now.

Thank you.

Yeah.

Ooh, right we're up to the end now. So we, and you've been fantastic, you've told me lots.

Alright.

Is there anything you think I've missed out or anything you'd like to add to what we've been talking about?

No, not really, no, so, say we do a lot more, we, we have more recycling bins than anything so, as I say we have like paper, card, plastic, and, and tins and that.

Ah do you?

Yeah, yeah.

Ah right, so is the kitchen involved?

Yes, yes, the kitchen use the same ones, yeah, they do their own recycling.

Right. Do they?

Yeah, but they, they use the same bins, they don't have the separate, their own bins, they use our bins but.

Yeah, and are they okay with the, because they'll use great big tins won't they?

Oh yeah, yeah.

And they take those as well.

Oh aye, yeah, yeah.

That's interesting, that's interesting.

Yeah, yeah, they take all, all of those, yeah.

It's amazing what goes on you see, it does.

[laughs]

You know, you just don't realise what's happening in a school unless you.

No, and the thing about all recycling is the Council provide all the bins free if it, if it's recycling, they don't charge you for anything the recycling, which is.

Ooh. So it's a benefit really.

It is, well it is, it doesn't cost.

Don't get many things for free do you?

[laughs] No, it doesn't cost.

It's good isn't it?

So it's only like the general refuse bins that we pay for apparently.

And if you're recycling more and using less.

Exactly.

You're not putting as much in the bins are you?

That's right, yeah.

Wow.

Okay?

Thank you.

END OF INTERVIEW

Appendix 15: Types of phenomena that can be coded

“Types of phenomena that can be coded” (Adapted from Bogdan and Biklen, 1992; Strauss, 1987; Mason, 1996; and Gibbs, 2006) Available at:

<http://www.acrn.eu/cambridge/downloads/files/How%20and%20what%20to%20code.pdf>

Number	What can be coded	Examples
1	Behaviours, specific acts Seeking reassurance	Bragging
2	Events – short once in a lifetime events or things people have done that are often told as a story.	Wedding day, day moved out of home for university, starting first job
3	Activities – these are of a longer duration, involve other people within a particular setting	Going clubbing, attending a night course, conservation work
4	Strategies, practice or tactics	Being nasty to get dumped, Staying late at work to get promotion
5	States – general conditions experienced by people or found in in organisations	Hopelessness “I’ll never meet anyone better at my age” settling for someone who is not really suitable
6	Meanings – A wide range of phenomena at the core of much qualitative analysis. Meanings and interpretations are important parts of what directs participants actions. a. What concepts do participants use to understand their world? What norms, values, and rules guide their actions b. What meaning or significance it has for participants, how do they construe events what are the feelings c. What symbols do people use to understand their situation? What names do they use for objects, events, persons, roles, setting and equipment?	The term ‘chilling out’ is used by young people to mean relaxing and not doing very much Jealousy “ I just felt why did she get him” A PhD is referred to as ‘a test of endurance’ (because finishing a PhD is a challenge)
7	Participation – adaptation to a new setting or involvement	About new neighbours “In my new house I have to keep my music down at night as the neighbours have young children”.
8	Relationships or interaction	Seeing family “ Now my sister lives in the next road she visits more and we’ve become much closer.
9	Conditions or constraints	Lose of job (before financial difficulties), moving away (before lost contact with old friends)
10	Consequences	Confidence gets dates, positive attitude attracts opportunities
11	Settings – the entire context of the events under study	University, work place, housing estate
12	Reflexive – researcher’s role in the process, how intervention generated the data	Probing question “How did you feel when he said that?”

Appendix 16: Final coding categories

A: KQ1 Pupil and staff understanding of environmental responsibility in school

- avoiding waste
- conserving energy
- infrastructure facilities available in school
- joint responsibility
- limitations
- procedures for recycling reuse

B: KQ5 Approaches used to develop environmental responsibility in school

- curriculum topics
- directed by the teacher
- incentives rewards
- modelling of behaviour
- observation of staff pupils peers
- opportunities to evaluate procedures
- routines and habits
- whole school policy

Barriers

Building design

C: KQ5 Influence of Eco school ethos

- active pupil participation roles and responsibilities
- involvement of teaching and non-teaching staff
- opportunity to provide feedback peer to peer pupil to staff
- other influences
- save money

D: KQ4 consistency of approaches

- awareness of implicit pupil and staff roles and responsibilities
- drivers and barriers to environmentally responsible behaviour, habits, misapprehension, time
- following routines and habits
- mixed messages
- TFG that there are differing procedures re lighting PCs water use

Drivers

E: KQ 2+3 demonstrations of EA and EB

- irritation criticism
- reasoning for actions
- routine informal habitual actions not taught as a topic
- use of infrastructure facilities

Observations

- ethos

- initiative
- other
- provision of teaching resource from sponsor
- reward scheme
- staff behaviour
- use of facilities and procedures

Other

Pupil Questionnaire

- anything else
- battery collection
- brown bin
- bug hotel
- Eco board
- Eco code
- Eco Committee
- Log
- nest box
- paper for recycling box
- recycling bin large
- reuse bottles
- save energy and resources
- scrap paper
- switch off sign
- wasteful
- water butt

Provision of infrastructure facilities

School name	Eco school	FSM %	English not as first language	Type	Energy spend per pupil (national meridian= 65)	Band
XX	Registered 2009	30.1	2.2	Community	101	Medium
XX	S 2011	57.1	13.5	Community	137	High
XX	S 2011	23	59.1	Community	77	Medium
XX	B 2010	14	43.9	Primary	74	Low
XX	No award	21	2.8	Primary	94	Medium
XX	S 2006	supp	8.3	Community	67	Low
XX	B 2010	9.7	1.7	Primary	69	Low
XX	S 2010	10.3	1.7	Primary	68	Low
XX	B 2006	18.4	2.4	Community	n/a	Low
XX	B 2012	14.3	1.2	Community	n/a	Low
XX	S 2015	9.8	3.4	Community	n/a	Low
XX	No award	6.7	2.5	Community	n/a	Low
XX***	Bronze no date	14.8	44.5	Primary	n/a	Low
XX	n/a	6.4	26.7	Primary	n/a	Low
XX	n/a	28.6	43.9	Primary	n/a	Medium

Appendix 17: Choice of schools

Key:

- Band (FSM and band eligibility)
- High= 35.1 equal to or above Medium= 20.1 – 35 Low= 0 –20
- Contacted 11th January 2016 green
- Contacted 1st February 2016 blue
- Contacted Feb 2017 pink
- Pilot red
- Contacted 2018 (contacted before and after summer holiday by email and letter) grey
- Main study school***
- n/a : data not available

Similar school details (as shown on Government website): [Search for schools and colleges to compare - GOV.UK - Find and compare schools in England \(compare-school-performance.service.gov.uk\)](https://www.gov.uk/search-for-schools-and-colleges-to-compare)

Similar SES – percentage of pupils eligible for FSM (*“School deprivation defined in terms of proportion of pupils eligible and registered for Free School Meals.”* <http://www.ifs.org.uk/publications/7644> March 2015) (*“Socio economic status is the measure of an area’s, an individual's or family's economic and social position in relation to others, based on income, education, health, living conditions and occupation.”* - http://www.southwark.gov.uk/info/200559/public_sector_equality_duty/3862/socio_economic_status)

- Similar percentage of pupils with English not as first language
- Within 5mile radius of city centre (UCLan PR1 2HE)
- Similar energy spends