Going green: a contextual exploration of the use of green exercise in UK primary schools as a pathway to resilience

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Going Green: a contextual exploration of the use of green exercise in UK primary schools as a pathway to resilience

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ABSTRACT

The overarching aim of this thesis was to develop a conceptual model which explicates the potential mechanism/s through which Green Exercise (GE), which is defined as "Physical exercise (PA) in green spaces that may bring both physical and mental health benefits" (Pretty et al., 2003, p.7), might improve resilience in children. This could have the potential to inform future practice for the development of GE resilience interventions for UK primary school children. 5 UK primary schools were selected for unstructured observations, focus groups and semi-interviews, with an overall ethnographic methodology. These schools already provided a nature provision via forest schools, and additional green exercise activities. For scope, 6 other education settings were also recruited where teachers shared their experiences of delivering GE provisions. Field observations, focus groups/interviews were undertaken (n = 59) with 20 students, 8 parents, and 24 teaching staff. (*1) Being Green, which refers to the experience of taking part in green exercise in UK primary schools (2) Going Green, which refers to the experiences of implementing green exercise provisions in UK primary schools and (3) Childhood, which refers to the wider contextual influences which may shape the experiences of what it means to be a child in today's society* The 'Green Resilience in Primary Schools' model (GRIPs) was developed to conceptualise the mechanisms through which GE can enhance resilience in the education system, considering the wider contextual issues associated with being a child. From this, a theory of change conceptualised as a logic model was developed which outlines the guiding principles which could be used to optimise UK primary school implementation of a GE intervention that has the potential to enhance resilience in children - thus helping to address the issues of mental health and obesity which typify much of childhood in the UK today.

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List of abbreviations

Green exercise	(GE)
Physical activity	(PA)
Executive functioning	(EF)
Special educational needs	(SEN)
Child and adolescent mental health services	(CAHMS)
Adverse childhood events	(ACEs)

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AUTHOR DECLARATION

I declare that all the information contained in this thesis is my own work.

Chapter 1

Childhood mental health; resilience and the role education system in mental health interventions

1.1 Childhood mental health- the current state of play

The World Health Organisation updated it definition of mental health in 2022 to mean, "a state of mental well-being that enables people to cope with the stresses of life, to realize their abilities, to learn well and work well, and to contribute to their communities" (WHO 2022). This definition emphasizes that mental health is more than just the absence of mental disorders; it is an integral component of overall health and well-being. Mental health problems are a major burden of global disease (Global Health Data Exchange 2018) and can impact every aspect of young people's lives. The most recent UNICEF report which focused on children's mental health globally was released in 2021. It states that more than 13% of children aged 10-19 live with a diagnosed disorder, which represents 166 million children worldwide. Anxiety and depression represent around 40% of all mental disorders among children and adolescents; the others include attention deficit/hyperactivity disorder, conduct disorder, intellectual disability, bipolar disorder, eating disorders, autism, schizophrenia and a group of personality disorders. Other key findings from this report state that suicide is the fifth most common cause of death in adolescents aged 10-16 years, which equates to 1 suicide every 11 minutes. In western Europe, suicide ranks as the 2nd highest cause of death for adolescents aged 10-16 years.

A more recent 2023 report from the Office of National Statistics focused on children's mental health in the UK found 20.3% of 8-16 years old, 23.3% of 17–19-year-olds and 21.7% of 20–25-year-old had a probable mental health disorder (20.3% overall)

(Newlove-Delgado et al.; 2023). This is in comparison to 10.1% likelihood of having a probable mental health disorder for the same age group in 2017. Although, it must be noted that since the initial rise in prevalence from 2017-2022, this report found that the rates have remain stable between 2022 and 2023.

There is less research which has examined mental illness in younger children, however it has been reported that from 5 years old, there is a 1 in 6 chance of a child having a probable mental illness (Mental Health of Children and Young People in England, 2023).

Mental health across the life span has a significant impact at an individual and public health level and is the main economic burden for the NHS. For example, the financial burden of all mental health care alone is £23 billion pounds per year, with cancer and cardiovascular disease coming in at a cost of £16 billion each a year respectively (McCrone et al 2008 accessed online 2022). However, despite the scale of the issue, the UNICEF report (2021) stated government expenditure on mental health globally (for adults and children) is 2.1% of the global government spend on overall health.

An implication of this is that primary and secondary care has become under-resourced to meet the needs of children in England today. The most recent Children's Commissioner for England Report (2024) states that of the 1 million children who were referred, more than a quarter are waiting for mental health support from the Children and Young People's Mental Health Services (CYPMHS) in 2022-23. Further, 39% of children had their case closed before receiving support; although this varied geographically - the most recent report from Public Health Scotland stated that 83.8%

of children and young people were seen within 18 weeks of referral (Public Health Scotland December 2023 accessed online).

The 2017 Green Paper "Transforming Children and Young People's Mental Health Provision" by the Departments of Health and Education states that 50% of all incidences of mental illness are formed before the age of 14 (Green et al., 2010) and early intervention can have a preventative effect. Thus, it has never been more vital to imbed preventative measures which will seek to to, reduce referrals to the CYPMHS. This requires an understanding of the underlying factors which are contributing to mental health issues in children through identification of both protective and risk factors that could be targeted through an intervention.

1.2 Childhood adversity as a risk factor for mental health issues

Risk factors have been defined as "*established predictors of undesirable outcomes",* and these tend to fall under one of three headings 1) genetic risk, 2) exposure to stressful life experiences and 3) status indicators of precarious life circumstances (Masten 2014). One risk factor which has been frequently linked to mental health problems in children is stress due to adverse childhood experiences (ACEs) which have been defined as:

"Highly stressful, and potentially traumatic, events orsituations that occur during childhood and/or adolescence. They can be a single event, or prolonged threats to, and breaches of, the young person's safety, security, trust, or bodily integrity" (Young Minds 2018)

Although the standard of living in the Western world has never been higher, children and adolescents are faced with an increasingly harsh social climate which exposes the younger generation to increased stress compared with previous generations. The current young generation spent their formative years socially isolated during the COVID-19 pandemic, public debate has increased, and there is more polarisation on key social topics such as gender identity and climate change (Bodin 2020; Pausch 2021). Alongside this, modern society is typified by more opportunity for transcendence across inherited social and economic class, for example, (Sen 2000). A 5-year study by (Schwartz & Ward 2004) found that the limitless choices with which youth are faced todayare a source of confusion and poorer well-being, rendering them less able to make decisions. However, this is often misconstrued as 'laziness' or a lack of responsibility of the *'youth of today" which* can be an added source of frustration for a generation who may feel misunderstood (accessed online Masaryk University News March 2023).

In her book *i*gen, Twenge (2017) focuses on the impact of smartphones for the generation which she labels *i*gen, as they are the first generation which have grown up with smartphones naturally present in all aspects of their lives. 'Phubbing' which has been defined in the Cambridge dictionary as "the act of ignoring someone you are with and giving attention to your mobile phone instead" has been associated with negative well-being as it can make the recipient of being 'phubbed' feel rejected and unimportant. This in turn can increase the likelihood that they will then turn their attention to their own phone rather than to something else (Chotpitayasunondh et al., 2016); arguably this is becoming a normal behaviour in both adults and children alike. In addition, there is a growing body of evidence which suggests that increased mobile

phone use is causing lower psychological well-being, as opposed to those with lower well-being turning to their mobile phone (Hofman-Bergholm 2024). Taken together, it could be argued that the construct of childhood has changed, and this in turn may be contributing to declining mental health.

Aside from wider societal factors which impact what it may mean to be a young person today, according to the Association for Young People's Health (2016), there are nine high risk adversities that have the potential to compromise their mental health. These include poverty, maltreatment or neglect, parental mental health problems, long term health conditions, family disruption, bullying and social media issues, peer problems, academic pressures (most notably increased due to new government legislation stating young people must now stay in school or further education until the age of 18) and body image.

The occurrences of ACEs are not uncommon. A nationally representative study of the USA found that three in five adults had experienced at least one ACE (Merrick et al., 2018). Within the UK, nearly all children under local authority care have experienced adverse childhood experiences, with abuse and neglect being the most common (NICE 2021), and of the 80,000 children in England in care in 2020, 45% had a diagnosable mental health disorder, compared to 20% for all children (NICE guideline Looked-after children and young people 2021 accessed online; GOV.UK Children looked after in England including adoptions 2020 accessed online).

Numerous studies have found an increased odds ratio of mental illnesses such as anxiety, depression, and suicide if four or more ACES are present (Hughes et al 2017).

Overall, ACEs are associated with 44.6% of all childhood-onset mental health disorders (Green et al. 2010),30% of anxiety and40% of depression in the adult population and 67% of lifetime suicide attempts (Kessler et al., 2010); Dube et al., 2018)

The relationship between the adversities is not linear; there is an interrelationship between different factors which further enhances the development of the risk of developing a mental illness. The theory of intersectionality states that disadvantages become compounded to create multiple disadvantages (Crenshaw 1989). Given the frequency with which childhood stress is now being reported, perhaps it is unsurprising that there is a growing evidence base that adverse childhood experiences may have lasting effects on health and development across the life span and even across generations (Bowers & Yehuda 2020, Hughes et al. 2017). The high occurrence of mental health problems in association with ACEs suggests that these could be a suitable target for an intervention aimed at reducing them.either

1.3 Managing adversity: the role of resilience

Resilience research began to gather momentum in the 1960's and 1970's following World War II where children grew up being exposed to war and all the associated traumas (Masten & Chicchetti 2016). Scientists were intrigued to examine the ways in which some children were able to recover from adversities such as concentration camps and loss of parents, whereas others were more affected, developing mental illness problems as well as physical health problems. This led to the concept of resilience, which appears to be a key mediator in the impact that ACEs have on the child, making it a target behaviour for intervention design.

Masten (2007) defines four major waves to resilience research which have occurred over the past 50 years, each characterised by a set of questions. Wave 1 was concerned with *'what is resilience and how do we measure it?'*. Wave 2 advanced our understanding through asking more complex questions such as *"What are the processes that lead to resilience and how can these be promoted in the context of risk?"*. Wave 3 built on this further by beginning to create interventions to try to promote resilience whilst testing out the validity of the Wave 2 theories. Wave 4 has emerged more recently, focusing on a more dynamic, complex systems-orientated approach within which individual factors either promote or reduce resilience. Wave 4 focuses on questions such as *"Which promotive and protective factors or processes are best for which people in which contexts at what level of risk exposure and for which outcomes?"* (Ungar 2019) and this forms the conceptual positioning of resilience that will be adopted in this thesis. By adopting this position this thesis is answering a direct call from researchers to pay attention to the complex weave of family, community, social policy, and access to education and training resources to improve resilience outcomes for children (Ungar & Theron 2019; Betancourt 2008; Yule, Houston & Grych 2019)

1.3.1 Definitions and conceptualisations of resilience

The meaning of resilience has been challenging researchers since the beginning of the resilience movement over 40 years ago (Curtis and Cicchetti, 2003; Luthar, 2006). The complexities surrounding definitions of resilience may reflect the theoretical journey on which this construct has ventured**.** Masten (2001) postulates that early attempts to conceptualise resilience fell into two main camps, variables focused and person-

focused approaches. Variables focused approaches plot the statistical connections amongst characteristics of individuals which could impact adaptation; they search for consistencies that could explain how some people fare better in the context of adversity than others. Person-focused processes, on the other hand, focus on identifying resilient people to understand how they differ from people who have not fared as well in the same adverse scenario. A previous definition of resilience which may capture the essence of these approaches would be *"the ability to bounce back from adversity"* (Masten 2009), as this seems to suggest that the potential to bounce back comes from an intrinsic 'ability'.

A more dynamic approach stems from the additive model of resilience (Garmezy et al., 1984) which states that positive adaptation (resilience) in the face of adversity is reliant on a careful balance of assets and risks. Assets are measurable characteristics that predict positive outcomes across all levels of risk, which could come from human, social or material capital. Risks refer to a negative criterion of outcome, for example, any of the adversities previously discussed could constitute 'risk'. In an additive model, it is important to note that the assets and risks contribute independently on how well a child is adapting to the adversity; however, it is the balance between the two which contributes to resilience. Garmezy, Masten and Tellegen (1984) call this the 'compensatory effect' whereby the presence of assets can counterbalance risk. These presumably work as they over-compensate for the risk factors, as the model implies.

1.3.2 Critique of previous models

Variable focused models can be criticised for being overly individualistic whilst failing to consider the macro level explanation for the presence of the assets or risks in the

first place. Friedli (2012) states that *"A focus on resilience cannot adequately explain inequalities in [health] and wellbeing and may serve to disguise or distract from analysis of social structures that result in and maintain inequalities in power, wealth and privilege"*. Models which list individual characteristics that interact to create or negate resilience do not capture the bigger social context and determinants. Research may well identify assets, but if the social system does not allow for that asset to be boosted for a subgroup of children with high level risk, or it is creating an environment which indirectly negatively compromises protective factors or threat activated moderators, then compensatory interventions are destined to fail before they have even begun. A social justice approach has been put forward to understand the social context within which resilience occurs. This calls for "*an overarching critical approach which explicitly takes into account political and economic influences and privileges research and practice co-produced with and alongside communities in adversity"* (Hill 2016). Essentially this calls for a top down and bottom-up movement which explores the problem from a macro and micro level to avoid a 'band aid' approach which has been described as *"putting a sticking plaster over the wound caused by macro-structural inequalities in power and resources"* (Taylor, Mathers, Atfield and Parry 2011). This may also help to tackle the neoliberalist perspective that individuals are to be blamed for their lack of success as they do not possess resilient characteristics (Garrett 2015).

Ungar (2015) also argues that too much emphasis has been placed on the impact of individual characteristics; the cumulative impact of individual traits accounts for less variance in children's outcomes than systemic factors such as the child's school or family relations (Abramson, Park, Stehling-Ariza & Redlener, 2010; Ungar 2013). Despite the generally accepted viewpoint from resilience researchers that a multi-

system approach is needed (Masten & Chiccheti 2016), interventions aimed at increasing resilience still typically focus on individual level characteristics. Ungar and Theron (2020) state that there is still a persistent bias towards a focus on individual level factors such as self-regulation, higher emotional intelligence, and problem - solving skills (Johnson et al 2017), and this could explain the minimal efficacy found. For example, Goyal et al (2014) examined 47 randomised controlled mindfulness-based-stress-reduction interventions (MBSR) which aimed to increase resilience, finding only a minimal to moderate effectiveness for reducing psychological stress. Ungar and Theron (2020) argue that this result would have been different if the intervention had considered a multi-system approach to bolstering resilience.

1.3.3 Wave 4 research – a multi-systems approach to resilience

Consequently, an intervention is most likely to be effective if it bolsters protective influences at multiple ecological levels, this is especially important in situations where a child's social or physical ecology does not allow them to express their individual strengths which would otherwise allow them to cope with adversity (Chicchetti, 2013; Masten, 2014; Rutter, 2000; Ungar, Ghazinour & Richter, 2013). For example, Reiss (2013) found that socioeconomically disadvantaged children and adolescents were two to three times more likely to develop mental health problems. Hart and Heaver (2013) also stated that many interventions fail to address inequality, and rarely were children from genuine adverse backgrounds used within the study samples. This is a key limitation that needs to be addressed in future research. In relation to this thesis, this would indicate that more research is needed to understand the dynamic, connecting levels of analysis, and adaptive systems which surround the development of the child.

As previously discussed, a wealth of research across all models and over time has yielded a consistent list of factors associated with resilience. Wave 4 research argues that the list of factors was in fact produced by and connected to fundamental adaptive systems or *'protective systems'* that protect human development under adversity. Consequently, damage to the development of these systems, or negative 'hijacking' of these systems, can break down resilience. In fact, research suggests that *"the greatest threats to children are those adversities that undermine basic human protective systems"* (Masten et al, 2009 p.127). This could be because an impairment in the system deteriorates the associated psychosocial factors which serve as either assets or protective factors for resilience. However, this is speculative as the processes which underlie the specific protective factor are less well understood.

Specifically, Masten (2001) has argued that there are fundamental adaptive systems, or basic human protective systems which foster development and recovery from adversity. Key systems include attachment systems, mastery motivation systems, self-regulatory systems, spiritual and cultural belief systems, and learning and problem - solving systems. A brief description of each adaptive system can be seen in Table 1. Table 2 demonstrates that short list and associated adaptive systems, from Masten (2014 p.148). It is noteworthy that this theory acknowledges that the development of resilience is based on a multi -level system through which all adaptive systems may mediate or moderate the expression of one another. This is in line with the social justice approach and Ungar's (2015) suggestion that resilience needs to be considered within the macrosystem context, and it also answers Hart and Heaver's (2013) call for multi-

level resilience interventions. A definition of resilience by Ungar which captures this is:

"In the context of exposure to significant adversity, resilience is both the capacity of individuals to navigate their way to the psychological, social, cultural, and physical resources that sustain their wellbeing, and their capacity individually and collectively to negotiate for these resources to be provided and experienced in culturally meaningful ways." (Ungar 2008)

Masten (2019) argues that with timely intervention, key adaptive systems which have become compromised due to ACEs can be reprogrammed (McEwen et al., 2015).

Within this thesis, a Wave 4 approach is taken, with sensitivity shown to the adaptive systems of attachment (1), self-regulation (2), mastery motivation (3) and education (4) which are deemed especially relevant to this thesis.

Table 1. Adaptive systems for resilience (Masten 2014)

Adaptive System	Description
Attachment	The quality of relationships between the primary caregiver, extended family, school relationships, community relationships, peer relations, and any other individual in a care-giving role.
Intelligence and problem-solving capabilities	A collection of abilities involving judgement, initiative, and adaptive behaviour (Masten, Burt, 2006; Sattler 1988) acquired through cognitive development.

Self-regulation	Self-management of attention, arousal, emotions, and actions. Executive functioning, including working memory, inhibitory control, and cognitive flexibility.
Mastery motivation	The motivation to master our environment in ways that promote successful learning and adaption and a sense of 'self-efficacy' and a desire for 'personal agency'.
Spiritual and cultural belief systems	The human capacity for 'meaning making' during trauma. Optimism, faith, and hope.
Education systems	Effective schools and education systems within which a child is exposed to microsystems (family, teachers, peer groups) mesosystems (interactions between microsystems e.g., parent and teacher communications) and macrosystems (national policies on school systems)
Community systems	Impacts of families, heritage, community values, ethics or national heritage and shared traditions, values, rituals, beliefs.

Table 2 Resilience factors in relation to adaptive systems (taken from Masten 2014 pg. 148)

Resilience factors	**Adaptive systems**
Effective caregiving and parenting quality	Attachment; family
Close relationships with other capable adults	Attachment; social networks

Close friends and romantic partners	Attachment; peer and family systems
Intelligence and problem-solving skills	Learning and thinking systems of the central nervous system (CNS)
Self-control; emotion regulation; 'planfulness'	Self-regulation system of the CNS
Motivation to succeed	Mastery motivation and related reward systems
Self-efficacy	Mastery motivation
Faith, hope, belief life has meaning	Spiritual and cultural belief systems
Effective schools	Education systems
Effective neighbourhoods; collective efficacy	Communities

1.3.4 Attachment and close relationships as an adaptive system

Bowlby (1982) suggested that attachment was a protective system which evolved biologically to enable a child to adapt to their environment. Attachment to a main caregiver offers security from predators whilst ensuring optimal emotional development and learning. This system is a bidirectional, organised system between the caregiver and infant. A threat to the infant triggers the infant to gain the help of the attachment figure, and at the same time the time if the attachment figure perceives there to be a threat to the infant this will trigger an innate need to protect them. As well as serving the purpose of protection within its own right, the attachment system also leads to the development of other protective systems. Cognitive development is influenced by parental involvement through the provision of a stimulating

environment and encouragement which impacts the thinking and learning system. For example, research from child abuse studies indicates that children who are neglected have far smaller brain growth and impaired development (Perry et al 2000). Furthermore, interventions which target the qualities of attachment have shown positive alterations in the brain development (Diamond & Lee, 2011).

Additionally, the nature of the care giving provided can set the scene for the self-regulation of the child. High quality, secure attachment relationship with responsive and sensitive caregiving enables the child to be able to successfully regulate their own biological functions, emotion, arousal, stress, and behaviour in the future as they have had successful self-regulation behaviour modelled to them. Furthermore, through the monotropic relationship with the main care giver the child develops an internal working model for all relationships which is carried forward to future relationships (Sroufe, 2005; Shaver, 2008). Mastery motivation is also impacted as the attachment can either foster an environment which promotes opportunities to achieve this, or it can destroy them. Spiritual and cultural belief systems are also largely influenced by the values instilled in a child through their early attachments. Consequently, an effective parent or main care giver can be the most important influence on resilience either for better or worse.

1.3.5 Self-regulation as an adaptive system

One of the most important systems in the context of good child development, self-regulation refers to self-management of attention, arousal, emotions, and actions. In infancy, caregivers will usually assist to co-regulate this system as they will attend to the child's emotional needs, teaching them rules and boundaries and stimulating them

to learn. However, the developing child is expected to gain control of this system as they mature.

Research consistently associates good self-regulation with current adjustment and future adjustment (Carlson et al., 2013; Masten & Coatsworth, 1998; Rothbart, 2011). Under threat, difficult emotions can increase and thus the ability of the child to keep adaptive control and take action to regulate their emotions and behaviour will lead to good resilience. Additionally, if a child is highly stress responsive, their ability to self-regulate becomes even more important to reduce their heightened stress levels to ensure they are maintained at a tolerable rather than toxic level.

Executive functioning skills are also thought to be key in the self-regulation process. As a child develops, they begin to direct their competencies towards achieving goals; this is the goal of development. This requires self-control; some of the functions underlying this occur out of conscious awareness, whereas others require voluntary management of mental and physical capabilities, known as executive functioning (EF). Recent neurobiological advances have identified EF as a system of cognitive control processes reliant on neural processes in the prefrontal brain (Best & Miller, 2010). Broadly speaking, this system controls three major cognitive processes; working memory, cognitive flexibility and effortful or inhibitory control (Miyake et al., 2000). Taken together, these processes are integral to adaptive behaviour, learning and changing in response to experiences through enabling the child to 'cope'. This system develops over the life span, most rapidly in pre-school years, and continues to develop into late adolescence (Zelazo & Bauer, 2013). They also appear to be a good indicator of school readiness (Blair, 2002). Recent research has focused on harnessing

the predictive power of EF on positive adaption. Obradovic (2010) developed a battery of tests to measure EF in 58 preschool and reception aged children who had lived in a homeless shelter in relation to teacher ratings of behaviour and academic school success. Although EF was related to age, parenting quality, and IQ tests, when these variables were controlled for, EF still held predictive power for school adjustment. Interestingly, an inverse relationship was also found between EF and cortisol (Cutuli 2001). However, this relationship could be bidirectional; adversity which causes toxic stress can undermine EF performance in the short term and EF development in the long-term (Blair & Raver, 2012). There is growing evidence that EF skills can be improved through intervention and training. For example, EF has been shown to improve with educational experiences, practice, and training (Zelazo & Carlson, 2012) which have been documented in observable changes in neural structure and function using MRI and FMRI techniques.

To 'self-regulate' in the face of adversity, a variety of coping strategies are employed, which can reduce anxiety, consequently reducing the allostatic load, and these have been linked to resilience (Feder et al., 2009). Active coping refers to strategies which directly alter the stressor in some way either through a behavioural response or a change in perception. Avoidant coping strategies alleviate the emotional trauma caused by the stress, for example, alcohol use, emotional or behavioural withdrawal through process of denial or displacement (Lawler et al., 2005). Active coping has consistently been associated with adaptability and psychological resilience (Holahan and Moos, 1987) whereas avoidant coping has the opposite effect.

1.3.6 Mastery motivation as an adaptive system

White (1959) argued that humans and animals alike were biologically pre dispositioned to engage with the environment in ways which would lead to mastery, through learning and adaption; a system which has evolved with natural selection. He called this system "motivation effectance" and the experience of satisfaction associated with perceived accomplishment as "efficacy". White (1959) proposed that children like to explore their environment and try novel experiences because they receive intrinsic pleasure from doing so, therefore this system ensures survival as it favours learning to adapt in the environment. Intrinsic motivation has been extensively researched (Harter, 1978,2010) and it is now widely accepted that experiences which create intrinsic motivation are the most successful in relation to sticking to a long-term goal. Ryan & Deci (2000) have suggested that intrinsic motivation is central to developing competence. Bandura refuted the concept of mastery motivation and developed the term 'self-efficacy' (1997) which refers to a perception of their likelihood of success with any given behaviour. The more we perceive our chances of success, the greater the likelihood of attempting the action. Bandura talked about a sense of 'agency' or 'control over one's life' and the associated benefits of this as motivating our behaviour as opposed to an intrinsic drive for mastery as suggested by White (1959). Either way, interventions which enable children to develop agency and self-efficacy beliefs, through the provision of experiences for children to experience mastery within a particular environment, can play an important role in shaping resilience. Self-efficacy arises from challenge; the experience of overcoming manageable challenges creates persistence in the face of adversity.

The connection between mastery and enhanced resilience could be explained through the stress inoculation hypothesis. Episodes of early uncontrollable stress in which the person was unable to master their environment to overcome the stressor can lead to 'learned helplessness', where a person comes to believe they cannot change the circumstances of their situation, (Overmier & Seligman, 1967) having developed a low sense of agency and self-efficacy from this experience. Animal studies highlight this. When administered inescapable and unpredictable shocks, animals develop heightened anxiety and their active coping has been shown to be reduced with later stressors, changing the neural circuitry of the hippocampus (Greenwood et al., 2003; Ho & Wang, 2010) which is involved in EF in humans. However, when the animals are administered shocks which can be avoided through behavioural modification, learned helplessness does not occur (Seligman & Mairer, 1967). Extrapolating this to humans, it has been found that individuals who have been able to successfully master a mild or moderate stressor show resilience to a variety of other later stressors (Feder et al., 2012; Russo et al., 2012). This is known as stress inoculation, which describes an individual who has successfully adapted to a stressor (mastery) who then has a higher-than-average resilience response to future adversities (Southwick & Charney, 2012). This could also explain why some individuals feel they flourish following adversity; perhaps this is because they perceive themselves to have mastery in the face of a threat, increasing their sense of agency and self-efficacy to deal with future problems.

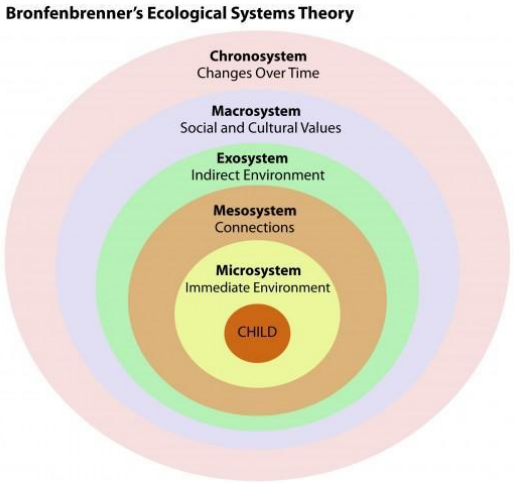
1.3.7 The Education Setting as an adaptive system

In the UK, a primary school child will typically spend 635 hours in school per year, increasing to 714 hours per year in secondary school (Organisation for Economic Co-

operation and Development, 2009). Cumulatively, this equates to 8,015 hours across the school life span. It is unsurprising then, that school has been referred to in the literature as the most organised system globally where children will spend most of their time (Eccles & Roeser, 2012); schools have a central role in nurturing many of the adaptive systems which underpin resilience.

The importance of school as a key system influencing child development has been described in Bronfenbrenner's ecological model of human development (Bronfenbrenner, 1979, Bronfenbrenner and Morrise, 1998). Figure 1 illustrates this model, which suggests that a child is influenced across five levels, the first of which are *microsystems* including family, school, and peer group. Surrounding this system are *mesosystems* which are referred to as *connections*. In the context of education, this could refer to a teacher-student relationship, or the relationship that the teacher has with parents. An *exosystem* refers to external environments which may influence the micro or mesosystems, although the child has no direct link with them. For example, if a parent loses their job, this will indirectly influence the family microsystem even though the child has no contact with the parent's workplace. These systems can be shaped by macrosystems which include cultural and social values, such as national policies that can affect classroom practice. Lastly, the *chronosystem* acknowledges that contexts can change over time and are not always constant. This can also affect the child, for example, high staff turnover within a school leading to inconsistent connections.

Figure 1. Bronfenbrenner's Ecological Theory [accessed online 2017]



Bronfenbrenner's model is arguably a useful framework to unravel the development of resilience within the school system. Wave 4 resilience research calls for an interactionist multi systems approach to understand resilience (Ungar, 2015; Hill, 2016; Friedli, 2012; Taylor et al 2011; Abramson, Park, Stehling-Ariza & Redlener, 2010; Ungar 2013) which this model clearly provides. By relocating the current resilience modelling within the context of this model, a truly holistic understanding of the school system as a pathway which can foster resilience might be better understood.

Hart et al (2014) states that resilience is *"beating the odds whilst changing the odds"* arguing that resilience is likely to be developed within a system which bolsters protective influences at multiple ecological levels. Bronfenbrenner's model helps explain this, for example, by showing that the exosystem of poverty can be affecting the microsystem of the family, hindering the parent's ability to provide high quality nurturing due to restricted resources. Through the school system, nurturing, for instance, could be provided to '*change the odds'* for the child by changing their attachment system. This is in fact the essence of the Pupil Premium grant, a

macrosystem national policy which provides additional ring-fenced funding for those of a low socio-economic status (Pupil Premium – GOV.UK 2019).

Masten (2001) argues that the microsystem of schools can build the capacity for resilience in both students and teachers through fostering the basic adaptive systems to build human capital, creating a resilient individual. In the first instance, schools can provide basic nutrition and care for low-income students, to ensure their physiological needs are met to function; this directly buffers against some of the immediate adversities associated with poverty. Following on from this, schools can tap into the adaptive system of attachment. Outside of the family, teachers are frequently cited as a powerful source of support (Doll et al., 2009). Bernard (2003) coined the term *turnaround teachers* which describes a teacher who promotes resilience through providing support, high expectations and opportunities to participate and belong. Research also shows that children who are particularly at risk benefit the most from positive relationships with teachers (Doll et al., 2009; Pianta, 2009). Ever more increasingly, the role of the teacher is evolving and the present viewpoint charges teachers as tier one mental health workers. The reasons for this are two-fold, first funding cuts with child and adolescent mental health services (CAMHS) means that there are fewer qualified individuals such as Educational Psychologists available to support schools, and secondly the increase in mental health problems seen in young people is directly impacting the classroom demographic. As of January 2022, Government public health funding which funds school nurses and public mental health services have seen a reduction of £700 million in funding between 2014/15 and 2020/21 which is a reduction of 23.5% (Local Government Association 2022). In mainstream school class, teachers now have a variety of non-statemented students with

complex learning needs such as ADHD, Asperger's Syndrome and Tourette's. The teacher can therefore be used as a source of strategic support to ensure that all students are able to make expected progress regardless of their backgrounds, which directly tackles some of the consequences of adversity. A growing emphasis on inclusion means that teachers find themselves 'on the front-line' in dealing with special educational needs and/or behavioural, emotional, or social difficulties (BESD) (Department of Education and Skills, 1997).

Additionally, Blair (2002) states that the adaptive system of self-regulation is developed by the instructional context of the classroom setting; students are required to pay attention, use impulse control, and manage emotions whilst at the same time using their problem-solving skills to tackle an academic task. Alongside this, the same executive functioning skills are needed to navigate increasingly complex relationships. In this sense, the student can enhance cognitive skills which can provide them with a strong foundation to be able to effectively manage potential adversities. In some schools, programmes have been adopted which actively teach children problem-solving skills including the identification of negative thinking styles and conflict resolution skill. An example is the UK Resilience Programme which is an 18-lesson programme based on teaching basic cognitive behavioural therapy techniques to Secondary School children (Challen, Noden, West and Machin 2009).

Opportunities to achieve mastery are a key focus of the human capital approach to education in Western society; all children are expected to achieve their very best. Schools can also provide access to a wide variety of extracurricular activities which can provide students with the chance to achieve mastery outside of the classroom, in

the context of sport, music or the arts for example. From a broader point of view, these contexts can also foster the other adaptive systems such as teaching self-regulation skills by being part of a team or facing a difficult challenge or bolstering attachments through the strengthening of relationships (Larson & Eccles, 2005).

Taken as a whole, school has the potential to be an adaptive system for children. Tackling disadvantage is a key performance indicator for schools, and since the introduction of the Pupil Premium Funding in 2014 by the coalition government, accountability pressures are now being placed on schools to ensure that all children make the same expected levels of progress, regardless of the adversity they are experiencing. Never has the time been more apt to position schools as a basis for the development of resilience in children.

1.4 School based mental health interventions

The macrosystem influencing educational practice in the UK is changing as the resilience research has begun to infiltrate education policy. Consequently, the education system has begun to place more of an emphasis on promoting the social-emotional context within which academic excellence can be achieved. In 2003 the Department of Education and Skills published the *"What works in promoting children's emotional and social competence well-being?"* prioritising the need for a national school-based programme to promote social and emotional skills in pupils and teachers. This was introduced alongside The Children's Act of 2004 which led to the development of the '*Every Child Matters'* agenda. Under the umbrella of the National Strategies 1997-2011, this led to the 'Social and emotional aspects of learning' programme (SEAL) which has been defined as when "*students learn to recognise and manage emotions, care about others, make good decisions, behave ethically and*

responsibly, develop positive relationships, and avoid negative behaviours" (Elias et al., 1997, pp 4). It is based on Goleman's emotional intelligence theory (2005), targeting self-awareness, self-regulation, motivation, empathy, and social skills. Zins et al (2004) argue that SEAL skills should form an essential part of the school curriculum, as they can serve the purpose of tackling many of the socio-emotional challenges that can affect students' academic performance and well-being, as well as having the potential to help teacher manage their own stress levels.

There are many parallels between Goleman's emotional intelligence theory (2005), which was used to create the SEAL framework and Masten's adaptive system theory of resilience which, on paper, would advocate this approach to increasing well-being within schools. For example, self-awareness could overlap with Masten's 'self-regulation' system, responsible decision making could overlap with Masten's 'intelligence and problem solving' system, whereas social awareness and relationship skills overlaps with Masten's 'attachment' system. The continual re-emergence of these themes would indicate their relevance in the quest to building resilience in children. However, the current SEAL model used within schools could be critiqued as it fails to acknowledge the 'spiritual/cultural elements' suggested by Masten, Additionally, there is no reference to the 'mastery' element present in Masten's work. SEAL was designed to be used as a theoretical foundation upon which schools could frame their own mental health provision. However, its agenda to be simple and therefore appropriate for delivery regardless of school context could actually lead toits downfall. There appears to be no acknowledgement of the importance of the mesosystem, as the connection between teachers, parents and students isare not acknowledged. There seems to be an overemphasis on individual traits at the expense

of ignoring the wider systems within which these skills are developed. This goes against the current Wave 4 resilience work which calls for a bottom up and top-down approach to resilience interventions.

It is the position of this thesis that in relation to the resilience literature, the SEAL framework is outdated at best, and conceptually weak at worst. This could go some way to explaining the mixed efficacy of this approach in schools. Commissioned by the Department for Education (2010) Humphrey, Lendrum and Wigelsworth conducted a national evaluation of SEAL programmes in schools. Focusing on Year 7 pupils, 22 SEAL schools, matched with 19 comparison schools in 2007/2008 were assessed on a variety of behavioural measures across three time points. Quantitative and qualitative measures were taken which indicated an overall limited effectiveness of SEAL strategies. No statistical differences were found between SEAL and comparison schools, and any effect sizes were marginal. Qualitative data shed light on the barrier to programme efficacy which included the following:

- A box ticking approach to strategies
- A lack of sustainability following initial bursts of SEAL activities
- A deconstruction of the SEAL domains, with a focus on only some components in isolation
- A lack of 'will' and 'skill' of staff
- Failure to plan effectively due to time constraints and financial barriers
- Lack of motivation due to no obvious initial effects

In addition, this evaluation noted that parental involvement is crucial for the successful embedment of programmes, as well as qualitative work with students to understand

how they experience these programmes. In 2015 a report issued by the Early Intervention Foundation, Cabinet Office and Social Mobility & Child Poverty Commission concluded that the provision of SEAL was hugely variable is education sectors, with some children receiving provisions, and others not, Further research is therefore needed which utilises a co-production model to capture stakeholder views.

1.4.1 Current mental health interventions in schools – why aren't we getting it right?

The 2016 Government White Paper *'Mental health and behaviour in schools'* states that schools should play a vital role in enabling children to strengthen their resilience to ward off serious mental health problems. £1.4 billion of funding was ring fenced over a 4-year period as part of the 'Future in Mind' policy which aimed to provide interventions to children and adolescents which reduce mental illness. The phrasing moved from SEAL towards the use of the term social emotional skills (SES) or social-emotional learning (SEL). Despite the volume of research which highlighted issues with the previous SEAL policy, a 2020 report by Nesta (Donnelly et al., 2020) highlighted a similar pattern of shortcomings with current provisions, stating that more clarity was needed in social and emotional skills policy, more resources to implement the programmes and a greater need for evidence as to what students need, and how effective programmes can be delivered. In essence, schools still aren't getting the delivery of SES right.

A prior critique from a systematic review by Hart and Heaver (2013) of existing school resilience programmes found an over emphasis on boosting either individual traits or social relationships rather than taking a multi-level approach. (Hart and Heaver, 2013). A large national evaluation was carried out on the Penn Resiliency Programme which

took place in UK schools. This programme teaches cognitive behavioural therapy skills, conflict resolution and relaxation skills to children. The evaluation found no long-lasting behaviour changes; short term significant differences were seen in strengths and difficulties scores (SDQ), but these did not hold over time.

Aside from conceptual criticisms, the role of culture and context appears to be largely ignored in the development of SES interventions; one important contextual barrier which may influence intervention efficacy is that of the - 'will and skill' - of the teacher. We are in an educational climate of heightened academic accountability, and whilst most schools are sympathetic to the need to address mental health (Learning First Alliance, 2001), interventions aimed at promoting this may viewed as an additional duty alongside academic instruction (Donnely et al., 2020).

Presently, there is a lack of research within the area of teachers as tier one mental health facilitators. However, a cluster of studies have been conducted which do add support. For example, Rothi, Leavey and Best (2008) suggest that there is a growing expectation that schoolteachers should also be acting as tier one mental health professionals, with a newly assumed responsibility in the early identification of children's mental health problems; notably, a lot of this stems from the growing emphasis on school inclusion which has led to an increase in children with special educational needs (Department of Education and Skills 1997). Interviews with teachers revealed a widespread perception of inadequacy in being able to identify and manage mental health needs, with a lack of any training being received during teacher training degrees. This feeling of inadequacy is further exacerbated by the increase in

mental health problems being seen, academic pressure, and a lack of time and resources. Indeed, it has been reported that even when some school based mental health programmes do appear to be positively received by teachers and students, financial restraints, competing academic priorities, and a lack of programme coordination lead to a fragmentation of mental health services within schools (Taylor and Adelman, 2000).

Another contextual barrier may be the accountability culture within education. An ironic paradox exists in the current education macrosystem. Whilst there is a drive on student well-being, there is also a strong a drive on accountability measures within schools. This creates a 'push' – 'pull' effect, where schools are being assessed on these two factors which may negatively correlate with each other, for both staff and students alike. The rise of the accountability structure in schools arose following the Education Reform Act (DES 1988), from which Ofsted, national testing and league tables were born. Floor standards were introduced in 2004, which provide the benchmark national standard rates of students who are expected to achieve the expected level of progress in SATS at the age of 10/11 years old, and in 'high stakes' subjects taken at GCSE. 'High stakes' subjects refer to those which count in the analysis of floor standards within the league tables. For example, English, Maths, Science, History and Geography all count, whereas vocational subjects such as drama, art and music do not. The national standard keeps rising, as does the level of rigour and challenge of primary and secondary school tests. The COVID-19 pandemic added unprecedented challenges to the education system, which is still recovering from setbacks concerned with missed learning.

According to a recent NASUWT report (2024) high stakes testing has been shown to be the source of a wide range of negative effects of teachers and pupils alike; currently only 12% of member teachers asked would recommend teaching as a career, and 96% state the pupils they teach have mental health issues. Pupil anxiety and stress have been reported, and there has been a rise in less creative teaching, a narrowing of the curriculum to include only high stakes subjects and an increased pressure to meet expected standards. This involves techniques such as rote learning, teaching only mathematics and literacy to prepare Year 6 students for their SATS test (as this test only asks questions on these subjects), question spotting, the administration of model answers and in some extreme cases, allowing some students to repeat certain elements of their coursework excessively until they reach the expected standard (Clarke et al. 2003; Pedulla et al 2003; Jones and Eglet 2004; Rothstein et al 2008; Ravitch 2010).

The impacts in relation to the potential for schools to be an adaptive system to promote resilience from adversity for children who need it the most are undermined by this macrosystem; in the worst cases some schools are creating more conditions of adversity. For example, the NASUWT (2024) report found that the Government's Special Educational Needs and Disabilities (SEND) Green Paper failed to provide the measures to meet the needs of the most vulnerable pupils, stating the system remains in crisis. The notion that schools develop human capital through fostering the self-regulation system (Masten 2001; Blair 2002) is out of context within the accountability macrosystem. Chances to develop mastery, self-regulations and leadership skills and stronger relationships through extra-curricular activities are reduced where children are excluded from these subjects to attend booster sessions.

Donaldson (2015) argues that the focus on meeting external expectations has come at the price of responsiveness to the needs of children and young people. Despite the earlier emphasis placed on the SEAL aspects of learning, this provision has largely buckled under the pressure to drive attainment forward. This could also explain the previous findings that SEAL programmes are not effective, and teachers may now have to worry about achieving well-being targets for students which creates a superficial 'box ticking' programme which undermines the complexity of such process. Worse still is the culture of schools buying in 'quick fix' interventions which have not been subjected to a robust methodological process. Harts' (2014) systematic review on UK school-based interventions highlight this; of 29 programmes reviewed, only one had been subjected at a randomised controlled trial. Hart (2014) also concluded that any short-term impacts of the interventions on social/emotional outcomes were not sustainable after the instructor had left as teachers lacked the training and often curriculum time to adhere to the intervention fidelity.

A further result of accountability strategies is that children are often 'stuck' in a classroom environment. This means they are given less opportunity to move around and for stimulation, which has been shown to be incredibly detrimental for students with disorders such as ADHD. Difficulties with attention, impulsivity and hyperactivity can be associated with several difficulties in the school setting (Barkley, 2006). Hinshaw and Scheffler (2014) have linked the increase in the amount of young people being diagnosed with ADHD to education policies; in the US, there has been a 22% increase in the rate of ADHD diagnoses in the first four years after the No Child Left Behind policy was implemented. There is substantial evidence that mental health problems have increased in young people and a source for this increase is the pressure

to achieve in school (Childline 2014). When so much 'good stuff' is lost from the learning, it is unsurprising that 11- 16 years old pupils in England have been reported to feel more pressurised by their schoolwork than most other European countries (WHO 2012).

Masten (2019) states that developmentally informed research on resilience has the potential to inform efforts to promote mental health. As a key adaptive system, the education system has the potential to strengthen resilience across many systems. However, the field has not extensively focused on the processes which may lead to the development of these adaptive systems, or the multi-directional relationship that may indeed exist between them all, within education. To the author's knowledge, this is the first attempt within the literature to link the negative impact of the school system on resilience development within disadvantaged children. The mixed efficacy of existing programmes clearly highlights the need for research which moves beyond the descriptive nature of what does, or does not work in the school context, in order to unravel the mediating processes through which the resilience pathway is promoted or inhibited within education as an adaptive system.

Chapter 2

Green exercise – making the case for a school-based intervention

Chapter 1 focused on the need for better mental health provisions for students, identifying that adaptive systems may provide a solid theoretical basis which can be used to create the foundations of a successful resilience intervention programme. However, the existing classroom-based interventions discussed had mixed efficacy showing a different approach may be needed. There is compelling evidence that nature exposure may provide promising benefits for children across a range of domains, including well-being, which will be explored in this chapter, culminating in a critical analysis as to how green exercise could be used within schools to strengthen the adaptive systems underpinning resilience. A case will be made which justifies the need to explore the potential for green exercise to be used as a school-based intervention, highlighting the gaps in the current literature which this thesis will aim to address.

2.1 The importance of nature

Nature is defined as "the phenomena of the physical world collectively, including plants, animals, the landscape and other features and products of the earth, as opposed to humans or humans' creations" (Oxford Languages Dictionary accessed online May 2024). There is an abundance of evidence which points to the relationship between nature and increased PA in children, (Bentsen et al., 2021;Schneller et al., 2017) and higher levels of self-esteem and self-efficacy (Barton et al., 2012, 2015; Roberts et al., 2019; Tillmann et al., 2018). Yet, nature exposure is the lowest during adolescence

compared to any other timepoint across the life span (Hughes et al., 2019) which could indicate that nature is undervalued as part of childhood today.

Connectedness to nature is concerned with how people identify themselves with nature, and the relationship they form with nature (Restall and Conrad 2015). A reason for declining mental health, may include a reduction in the connectedness to nature within the child population (Mayer and Frantz, 2004), which has led to the creation of the 'Nature Deficit Hypothesis (Louv 2005). This hypothesis refers to the negative consequences of a reduced connection to nature, including attention difficulties, behavioural problems, diminished use of the senses, and higher rates of physical illness (Soga & Gasten 2016). Following on from this, Karsten (2005) discusses a new concept of childhood where children spend less time outdoors, which has been referred to as a 'generational amnesia about the natural world' (Herbert 2009). Children now have a field of 'constrained action' (Kytta, 2004) or a reduced access to space within which they are allowed to operate, and it has been reported that children used to play in nature 80% of the time 40 years ago, compared to only 10 % today (Soga and Gaston 2016). This goes hand in hand with globalisation and rapid increases in technology use and urbanisation (United Nations 2019). Coupled with the increases in academic pressures outlined in chapter 1, this leads to a vicious circle which could lead to more distress in adolescents (Pascoe et al., 2020). Louv's (2005) hypothesis may have come into fruition, yet the impacts that nature deficit have on childhood mental health is not well understood, and further study is warranted.

2.2 The benefits of green exercise for children/adolescents

Green exercise (GE) is a closely aligned concept to research which focuses on the impact of nature exposures defined in the context of this thesis as as "Physical exercise (PA) in green spaces that may bring both physical and mental health benefits" (Pretty et al., 2003, p.7). This can include any green space, rural or urban. PA has been defined as any bodily movement produced by the contraction of skeletal muscles that leads to a substantial increase in calorific requirements over resting energy expenditure (American College of Sport Medicine – ACSM 2013). Exercise can be defined as a *"subgroup of PA, defined as planned, structured and repetitive body movements done to improve and/or maintain one or more components of physical fitness' '* (Loureiro and Veloso, 2017 p. 150*)*. In this instance, GE is most in line with the definition of PA, although some elements of green exercise are indeed purposeful such as outdoor exercise classes. The term GE was created as a distinct faction of nature based research since the aim of GE research is to convey the synergistic well-being benefits arising from activity in green spaces (Pretty et al. 2005; Barton et al. 2009); the emphasis here is on the interaction between nature, PA and mental health as opposed to the value of nature exposure alone.

It must be noted that in the context of GE within education, GE does overlap with other related concepts, and could fall under the wider consortium heading of PLaTO (Play, Learn and Teach Outdoors). Within this field, there has been a call for a more harmonious approach to the terminology, taxonomy and ontology used. A a recent study (EY 2022) carried out 4 streams of work, including a systematic review and Delphi study methodology to create a final list of 31 PLaTO terms and an ontological model. Within this schema there are 5 root terms, 'outdoors', 'play' (also divided into outdoor play), 'learning' (also divided into outdoor

learning) and 'teaching' (also divided into outdoor teaching) and 'outdoor education'. It is of interest to note that GE isn't referred to in the PLaTO taxonomy/ontology. Being that this thesis is exploring GE within the educational context consideration, I have created Table 3 which includes the most relevant overlapping terms and their definitions which are taken from the original paper, along with a column which explains how this taxonomy may overlap with GE research, as it is defined in this thesis, to position this thesis alongside the educational pedagogy.

Table 3 Using terminology and definitions extracted from Terminology and taxonomy of the Play, Learn, and Teach Outdoors—Network (PLaTO-Net) to position Green Exercise

Root Term	PLaTO term	Sub-term	Definition	Overlap with terms used in GE research
Education	Outdoor Education		Education that takes place outdoors	
		Environmental education	"A form of education aimed at increasing knowledge, awareness, and appreciation of the environment"	These terms overlap with GE as they refer to the different educational outdoor frameworks within which GE may take place, as the children are being physically active within these settings. The emphasis within GE research is not on the academic learning outcomes, but the physical experience of being outside.
		Forest schools	"An educational approach that includes regular and repeated access to natural space and participant-directed, emergent, and place- based learning."	

		Outdoor classroom	"A shared space of learning and teaching in the school context that is entirely outdoors Nuances: Unlike outdoor education, an out- door classroom takes regular pedagogy and curriculum outdoors in the school context"	
		Place-based learning	"Learning that considers the importance of connecting learners with their community by anchoring pedagogy within the context of the locally natural, cultural, and social ecosystems. Nuances: The learning focuses on a specific physical space which may or may not involve the natural environment"	
		Land-based learning	"An approach to education that recognizes a deep connection and relationship of reciprocity between people and the land. Nuances: This is specific to the North American context based on Indigenous epistemology of which the land is being understood beyond the physical sense and as with spiritual, emotional, and intellectual sense."	
		Nature-based learning	"A form of teaching and learning situated in the context of outdoor natural settings"	
		Learning for sustainability	"A cross-curricular approach to life and learning which enables learners, educators, schools, and their wider communities to build a socially just, ecologically sustainable, and equitable society"	

Outdoors			"Any open-air, wild, natural, or human-made space Nuances: The space may include a temporary or fixed cover (e.g., awning or roof) but maintain exposure to ambient environmental conditions"	These terms overlap as they refer to the physical spaces and/or structures used during GE.
		Green space	"Any vegetated land, an area of grass or trees that may also contain bodies of water (e.g., pond, creek), in an urban environment Nuances: The space may either set apart for recreational or aesthetic purposes or wasteland areas that have been colonized by nature in an otherwise urban environment."	
		Loose parts	"Natural or manufactured materials with no specific set of directions that can be used alone or combined with other materials, moved, carried, combined, redesigned, lined up, and taken apart and put back together in multiple ways and used for play."	
		Playground	"A piece of land usually equipped with facilities and/or equipment that is used for outdoor play and recreation."	
		School ground	"Proprietary outdoor area on the land of educational institution buildings."	
		Natural environment	"Non-built surroundings and conditions in nature in which living and non-living things co-exist"	
		Garden	"Planted, developed, or cultivated land used to grow vegetables, fruit, herbs, flowers, and other living plants and organisms"	
		Outdoor play area	"Any outdoor area where people can play"	
Play			"Voluntary engagement in activity that is fun and/or rewarding and usually driven by intrinsic motivation. Nuances: Not all play is self-directed and intrinsically motivated"	
	Outdoor play		"A form of play that takes place outdoors"	This term overlaps with GE any form of these play types on nature may involve being physically active.
		Active play	"A form of play that involves PAof any intensity"	
		Free play	"A form of play that is unstructured and self directed"	
		Nature play	"A form of play that takes place in a natural environment and/or involves interaction with natural elements and features (e.g., water, mud, rocks, hills, forests, and natural loose parts, such as sticks, pinecones, leaves, and grass)"	
		Risky play	"A form of play that is thrilling and exciting, which involves uncertainty, unpredictability, and varying degrees of risk-taking"	
		Social play	"A form of play that involves interacting with others"	

This table contains extracts taken from "**Lee EY, De Lannoy L, Li L, De Barros MI, Bentsen P, Brussoni M, Crompton L, Fiskum TA, Guerrero M, Hallås BO, Ho S. Play, learn, and teach outdoors—Network (PLaTO-Net): Terminology, taxonomy, and ontology. Int J Behav Nutr Phys Act. 2022 Jun 15;19(1):66 p12."**

Research into GE thus far has focused on three broad health outcomes (Bragg, et al., 2013). These are: (i) improvements in psychological well-being (ii) generation of physical health benefits (e.g., lower blood pressure, lower heart rate and reduced cortisol (Beil and Hanes 2013; Laumann et al., 2003)) and (iii) facilitation of social networking and connectivity (e.g., *bonding* with others, *bridging* with others who have dissimilar views and *linking* with those in an authority position through positive engagement (Pretty 2003)). The most common methodological approaches taken to study GE, include (1) urban versus nature based outdoor exercises (Li et al., 2012, Brown et al.,. 2014, Roe and Aspinall, 2011; Pretty, et al.,, 2006; Pretty et al., 2007, Townsend 2006;) (2) indoor versus outdoor exercise (Coon et al., 2011, Teas et al., 2007, Ryan et al., 2010) and (3) urban versus nature views in a laboratory (Pretty 2005, Akers et al 2012). A study by the Centre for Research on Environment, Society and Health (2012) states that regular PA in a natural environment can reduce the risk of suffering from a mental illness by 50%, and a dose of nature can have immediate positive effects on mental health across a wide range of activities, with improvements in self -esteem being seen within the first 5 minutes of light GE (Barton and Pretty, 2010). Research also suggests that GE can be used as a form of green care, utilising plants, animals, and the surrounding landscapes to improve health and well-being (Sempik and Bragg 2001). These programmes can be passive (e.g., a view from the window), active (e.g., GE interventions such as a walking group) or actively shaping the natural environment (e.g., GE interventions such as conservation work) (Fieldhouse and Sempik 2014).

However, a more recent systematic review by Lahart et al (2019) examined the evidence for the additive effect of PA in nature, as opposed to nature alone (outdoors or virtual outdoors) versus indoor exercise across 28 trials, with a meta-analysis being conducted on three longitudinal trials. Findings indicated acute bouts of GE may increase enjoyment, perceived exercise intensity, biological markers, or perceived exertion. However, the authors reported a high risk of bias and low-quality evidence, making it harder to support the view that exercise in nature gives additional benefits to just being in nature. The authors concluded by calling for more evidence which is rigorously designed to determine the long-term effects of GE compared with exercise indoors.

Bilton (2002) states that movement is the most natural and crucial mode of learning in young children. When outside, children can have the space to move around freely, allowing them to play in a way that would not be tolerated inside the classroom (Bilton, 2002; Ouvry, 2003). When outdoors, children can move on a much bigger scale and can play with natural materials without the worry of being reprimanded for making a mess, or for making too much noise. Increased space has also been associated with more fantasy play in children (Ouvry, 2003), while boys can be drawn to fantasy play with a plot line which usually involves lots of running and chasing. Children are engaged in 'green exercise' by the very virtue of the way they are drawn to playing in nature. Research has found that children who spend time participating in GE undertake higher intensity activity compared to indoors (Wheeler et al .2010). Within the school context, Wood et al., (2014a) found that children's levels of moderate to vigorous PA (MVPA) were 40% higher during playtime on the school

field (large, grassed area) compared to the playground (concrete based area). Natural settings can play a key role in promoting PA in children and young people. For example, increased PA is also associated with access to parks and open spaces (Epstien et al., 2006; Loukaitou-Sideris and Sideris, 2009). Research also suggests that during some GE activities, gender differences in PA become reduced, with girls increasing their amount of PA in the outdoor setting to become much more comparable to that of boys (Lovell, 2009; Groves and McNish, 2008). Given that 3 out of 4 children do not meet the WHO recommendations for PA (Detweiller et al., 2022), research which indicates that children are more active in nature paints a compelling argument for the use of GE within a school-based intervention.

Stephenson (2003) postulates that young children seek out physical challenges in their play to experience risk, which can translate into other areas of life. Green exercise can satisfy this need, more so than exercise alone, or regular indoor play. Some physical experiences are unique to the outdoors, such as the sensorimotor skills that are developed through the sensation of sunshine on the face, or the sounds arising from leaves blowing in the wind or the touch of the soft grass. Gross motor skills can be developed by jumping in puddles, swinging off branches and climbing trees. Fine motor skills can be developed through picking up a small leaf to discover the mini beast inhabitants. Freedom to move and make physical choices in nature may increase a sense of personal autonomy, especially important in relation to the research cited in chapter 1 which states that children and adolescents feel unable to make choices in society today as they are too overwhelmed (Sen 2000). A recent study by Detweiller (2022) examined this as the first study to attach biological markers to children whilst undertaking an outdoor education intervention compared with a control group. They

took a range of measures including cortisol and fMRI images of the amygdala, hippocampus, and prefrontal cortex at different timepoints across the school year, in conjunction with self-reported measures of personal autonomy and the use of accelerometers to measure PA. They found that PA increased in the intervention group, and there was a reduction in cortisol throughout the day. They also found that ratings of personal autonomy were higher in the intervention group which was positively correlated with structural changes in the brain. The researchers conclude by asking for more research which explores the effects of nature exposure, PA and stress reduction in the child population within the education setting.

The relationship between nature and increased PA is not necessarily linear; variables have been found to moderate this association. Research which compares PA in rural versus urban areas is quite mixed; some studies have found higher PA in children from rural settings, (Liu et al., 2012) whereas other settings have found the opposite to be the case (Al-Nuaim et al., 2012) and some studies have found no differences (Loucadies et al., 2004). Such contradictions indicate the GE experience for children is nuanced and in need of greater examination.

GE research findings in the child population are like that of adults; overall there is a positive relationship between the use of green space and PA (Lachowycz and Jones, 2011). Pretty et al. (2003) state that GE provides numerous health benefits for children including enhanced mental wellbeing, improved social connection and physical health (Hyndes 2010), and increases in cognitive functioning in children with ADHD (Collado and Staats 2016). A systematic review which compared indoor versus GE found that the latter resulted in greater feelings of revitalisation, positive engagement,

improved self-esteem, and a decrease in tension, anger, and depression (Barton et al. 2009; Pretty et al. 2007). However, there is some mixed research with children and GE, with several studies finding no significant differences in self-esteem following GE, whereas the adult evidence has found a consistent pattern (Reed et al., 2013, Wood et al., 2014a, Barton et al., (2014) Wood et al., (2014b).

2.3 What can outdoor education research contribute to our understanding of GE?

It may be pertinent to further distinguish between GE (which focuses on the additive benefit of PA in nature), and outdoor education research, which tends not to necessarily focus on the impact of PA in nature exclusively. This thesis argues that it is this unique pattern of interaction that the child has with nature which seems to naturally create GE, rather than a decision to undertake 'PA' specifically, as may be more of the case with adult populations. The difference between 'nature play' and green exercise is that, whilst children do seem to have an increased level of PA when they play in nature, this is not the intention of this activity as the children are being allowed to use 'loose play'. In green exercise, a physical element is involved, allowing the child the additional benefits of engaging in exercise, which is substantial within their own right.

Compared to the field of GE and children, there is a far greater body of research which looks at the impact of outdoor education. Whereas the GE research has shown some mixed efficacy, research focused on outdoor education demonstrates that nature experiences have a positive influence on children. The following effects have been observed, though this list is not exhaustive:

1. An increase children's positive views about nature, creating unstructured play which can allow for freedom (Wells and Evans 2003,2006; Bingley & Milligan 2004; Louv 2005)
2. The promotion of healthy personal development (Wells and Lekies, 2006), with children whose homes are closer to nature coping better with stress in later life (Wells and Lekies 2006)
3. Cognitive functioning can improve (Wells, 2000)
4. Louv (2008) suggests that time in nature for children promotes adaptive processes in child development including self-confidence
5. Restorative qualities are improved that help children to relax and cope with everyday life (Louv 2008)
6. Additionally, a substantial body of evidence reports benefits for children with attention deficit hyperactivity disorder (ADHD) when exposed to nature, including improved concentration and an overall reduction in symptoms (Bird 2007; Taylor et al., 2001; Kua and Taylor 2004).

Nature based learning is becoming more commonly used in early learning centres (from birth to 5 years) particularly in response to the COVID-19 pandemic where educational settings were placed under pressure to keep children outside as much as possible. There is a growing body of evidence which highlights some reasons for the positive effects seen. These include the varied environmental terrain that nature settings can offer which increases opportunities for exploration (Johnstone et al 2022), as well as increased connection between peers and engagement in play through PA (Mitra et al 2020; Riazi et al 2021; Spence et al 2021).

Although still limited, a growing body of research is accumulating which focuses on the specific benefits of nature-based play in the education setting. In a review of the health benefits of green school grounds, Bell and Dyment (2008) found an increase in physical activity, better social relations, improved mental health, reduced stress, and increased self-confidence in the children with access to nature at school. Chawla (2004) found that under conditions of hardship and stress, children will often seek refuge in nature for restoration and healing. A systematic review by Gill (2014) focused on the benefits that arose when children under 12 spent time in natural environments. A total of 61 studies carried out between 2003 - 2010 met the inclusion criteria. Some of the benefits that were most strongly supported are as follows:

- Spending time outdoors is associated with adult pro-environment attitudes
- Feelings of connection with nature increased
- Living near green spaces is associated with greater physical activity, and improvements in mental health and emotion regulation, for all children and also those with ADHD
- Play in natural environments leads to improvement in motor fitness for pre-school children

2.4 Green exercise and children/adolescents; gaps and contradictions in the current research

A key finding was that the style of play in nature was found to be a significant factor in the receipt of many of the associated nature benefits. For example, it was noted that

‘free play’ in nature, or ‘loose play’, (a term coined by Louv (2008) to describe the way children play in nature) was associated with both health benefits and positive environmental attitudes, whereas more structured play styles such as allotment projects in schools, or field trips, were associated with educational benefits (Gill 2014). However, no study has ever compared the different strategies for engagement in nature, which highlights a large gap in our understanding of this phenomenon.

Because this evidence was focused on nature exposure, as opposed to the effects of GE specifically with children (with a specific focus on the benefits of exposure to PA in nature) it is not yet clear whether PA provides an additional benefit over simply being in nature for psychological well-being in children, which could explain the mixed findings seen in GE research.

Furthermore, there is a lack of empirical research which utilises quantitative data within this field, meaning that measurement of health outcomes has remained ill-defined, and the connection between outdoor use and health outcomes is taken for granted and not necessarily quantified (Munoz 2009). Of the quantitative research that has been carried out within the GE research, self-esteem and self-efficacy have been the main measure. It may be that there are other benefits for psychological health when children are involved in GE that are not captured by self-esteem measures; more research is needed which unpicks the potential effects of GE for children. This could help inform more rigorous evaluative designs in the future to ensure the research is measuring all the outcomes of GE. It is noteworthy that this appears to be an issue for research looking at overall outdoor learning in the UK (not just with a focus on the additive benefits of exercise outdoors). Johnstone et al (2022) highlights that despite

the popularity of nature-based learning in the UK, there remains very little robust research, employing rigorous evaluation designs, on its benefits or otherwise.

It is important to consider children and young people's experiences within the context of their agency (Elsley 2004). Harden (2000) talks about 'subversion strategies' which children use to negotiate public and open spaces in ways that appeal to them, and research shows that children do not always negotiate space in the ways that adults want or expect them to. It is also important to highlight that the way children navigate their environment may correspond to their age; older children may respond to nature in a very different way to younger children. Traynor et al (2022) notes how very little of the research which has explored the impact of nature on children has involved children under seven years old. More recently, researchers have started to focus on the early years (from birth to school age), but this leaves a gap in those aged 4-6 years old. These children are expected to be school ready, and from Year 1, learning is predominantly inside. This may mean that the relationship between these children and nature is very different, and worthy of further exploration.

Thomas and Thompson (2004) talk about the importance of children being able to 'claim' spaces within wild space areas, and Rasmuseen (2004) highlights the concepts of 'children's places' which are considered important by themselves, and not necessarily by adults, as the place has a special meaning to the child; for example, a particular tree, or corner of a field. School fields will need to adhere to health and safety regulations, and will likely be 'managed' spaces, designed to reduce risk, which are far less appealing to children compared to wild spaces (Berg and Medricj 1980),

which could have led to findings that GE did not significantly impact self-esteem in children. As previously outlined, Detweiler et al (2021) found that outdoor education environments led to greater autonomy for the child, and a reduction in biological markers for stress. This may confirm that the GE experience is more complex for the child; school fields may provide less opportunity for autonomy.

Overall, research reports that children prefer nature over other environments (Evans 2006). Sobel (2008) state that regardless of socioeconomic status or ethnicity, there are seven common ways that children 'free play' in nature which are: adventure; fantasy and imagination; animal allies; maps and paths; special places; small words; and hunting and gathering. Sobel (2008) highlights the importance of understanding how children cultivate their relationships with nature, rather than focusing on the relationship between children and nature from an adult perspective. Taken together, these seven 'Play Motifs' enable children to connect with nature across all the major developmental trajectories. It could be that this 'interaction' has not been captured in the controlled GE studies, which may have masked the true synergistic benefit of GE and well-being. It may also be the case that as children are naturally moving more when exposed to nature, when asked specifically to undertake GE in controlled studies, there is no 'novelty' here, and so children's levels of self-esteem for example, might not change, since PA in nature is not new for them, compared to an adult population.

More research is needed which examines the GE experience of children across a range of ages in natural environments, to address the inconsistencies and gaps in the research concerning mental health outcomes. Previous research which examined GE in schools

seldom considered the role of the unique interaction that children have with nature, nor the context within which the GE was taking place, which may have gone some way to explain the varied outcomes, which highlights a gap in the field. Further to this, there is a lack of understanding of the scope of GE interventions/programmes in UK primary schools as the focus has been on outdoor education in the early years settings as opposed to school settings. This highlights a gap in current understanding of the different ways in which GE is experienced across settings, and the potential impacts of this, which this thesis will address.

2.5 An exploration of the mechanisms through which GE could improve child mental health

Program theory is a model which clearly states how an intervention will achieve its short term and long-term goals, as well as detailing the processes, mechanisms and context that will lead to programme impact (Funnell & Rogers 2011) . A Theory of Change (ToCs) is a method to create a program theory, which describe how interventions can lead to long term outcomes by making underlying assumptions and the role of context implicit (Weiss 1995). The ToC method states the programmme's underlying assumption by detailing the relationship between the following components: inputs, activities, outcomes, impact, and the context of the programme (Connell and Kubisch, 1998; Traynor et al 2022).

In public health research there is arguably a lack of explicit ToC reporting in the research (Breur et al 2016b), and it has been suggested that there is little application to the creation of interventions in the health sector (Maini 2018). In relation to green exercise interventions for primary school children, there is no ToC model. In fact, there is only one UK based study which has attempted to create a ToC which focused on

outdoor education in early learning centres (ELC). This research conducted by Traynor et al (2022) conducted interviews with a range of stakeholders and observations of several ELC sites. In brief, examples of inputs were people, location, and transport; examples of activities included nature play and free play; some of the outputs noted concerned the frequency and duration of the different activities. Some of the contextual factors referred to location of natural setting, parental beliefs, and topography; one of the assumptions made was that parents could afford correct clothing. Finally, short term outcomes of these programmes fell into three categories which were cognitive outcomes, physical outcomes, and social, emotional, and developmental outcomes; intermediate outcomes covered areas such as improved mental health and weight, and overall impact was that children have enhanced health and well-being across many important developmental areas.

The positive effects for mental health as well as other outcomes associated with outdoor learning/GE have been previously discussed. However, two more recent systematic reviews of green exercise provisions/school-based interventions to support healthy indoor and outdoor environments for children both found only weak – modest evidence of the effectiveness of such provisions, with papers calling for a better understanding of the underlying effects and mechanisms of GE (Fernades et al 2023; Mnich et al 2019).

The section below will review ideas and theories which have been used to explain the effects of nature, and or PA on mental health. Whilst an array of benefits of nature-based play is reported, very few studies are focused on the underlying mechanisms which contribute towards these effects, for example, resilience. These theories will be

discussed in relation to assumptions made about potential mechanisms through which GE could lead to improved resilience for children, and subsequently better mental health.

2.5.1 Assumption 1: GE may provide increased opportunities for play and the associated benefits of this for resilience

Children and young people rank play or access to recreation as one of the top factors which could improve their lives (Children and Young People's Unit 2002; Camina 2004; The Children's Society 2006; UK Government 2007), yet there is little reference to the importance of play in the well-being literature.

Following the UNICEF report (2007), the Government created 'The Children's Plan' (DCSF 2007) a 10-year strategy to make England the best place in the world to grow up. In fact, £235 million was pledged for the development of play areas. Coupled with the work commissioned by Play England (2008) which accumulated a rich body of evidence advocating the benefits of play for well-being and resilience, a compelling argument for the use of play as a framework for a resilience intervention for children can be made.

Where the impact of play has been researched, it is often in the context of summarising benefits regarding specific skills that can be enhanced through access to play such as in the cognitive, social, emotional, and physical domains. Whilst this is not invalid, Lester and Russell (2008) argue that play is a highly complex process which operates holistically across multiple systems including the environment, emotions, neural and even genetic systems. The authors refer to play as *"a way of building and shaping the*

architecture of the brain in a unique manner, through the relationship to the body and to the environment rather than as a way of learning specific skills" (p.35). Previous research which assumes that the purpose of play is to acquire basic skills overlooks the true purpose of play which is as an adaptation system which serves to build resilience in children; the 'skills' that the children learn are part of this system, they are not the purpose. Considering such skills can also be taught in the classroom, it makes sense that play has been deprioritised within the school system, since the view of educators might be that play serves no unique purpose and so is only needed at break and lunch time as it is 'merely frivolous and non-productive' (Lester and Russell 2008 p. 35).

Childhood is a unique period where there is much scope for plasticity of the brain due to environmental exposure (Schore 2001; Lewis 2005; Bjorklund 2006) which can influence a child's ability to adapt to the challenges they are likely to face throughout the developmental trajectory (Lewis 2005). Children who show flexibility can adapt better to adversity than their peers, and play may hold a vital role in encouraging a greater flexibility to environmental stressors (Pellegrini et al. 2007). Bateson (2005) states that play is a unique behaviour system as it allows children to safely rehearse risk. Children expose themselves to elements of risk in the environment, without the risk of exposing themselves to real harm. Spinka et al (2001) refer to this as 'training for the unexpected', children can train in a variety of different ways. For example, a child can place themselves in an uncertain situation where they can safely practice a variety of novel responses. This develops a greater understanding of the likely consequences of a chosen response, allowing them to make the most beneficial decision in the future. Emotional flexibility can also be strengthened through the child

feeling safe to experience emotions such as surprise, or temporary unbalance or disorientation caused by the expression of a wider variety of emotions, including more difficult emotions such as sadness, jealousy, or anger without having to experience any real loss of control, as the situations are simply made believe (Sutton-Smith 2003).

These 'as-if' behaviours, a term coined by Gordon and Esbjorn-Hargens (2007), allow greater freedom, interaction and creative possibilities which increases the innovation of the child leading to more novel thought processes which lead to greater flexibility in the face of future environmental stressors. This creates a process where the child is then able to create even more complex 'as-if' play scenarios. This allows for even more freedom, interaction, creative possibilities and so on. From a cellular level, playing stimulates novel neural pathways which stimulate plasticity (Sutton-Smith 2003), developing more complex vertical integration between motivation, reward, and emotion systems within the brain, as well as greater coordination between perceptual, motor and thinking systems (Burghardt 2005; Spinka and et al 2001).

Lester and Russel (2008) draw parallels in their work between play and Masten's adaptive systems, arguing that these are strengthened through play. For example, 'as-if' behaviours allow children to develop a repertoire of emotional responses, or a 'user guide' as to which are most appropriate for a given situation, which can allow a child to strengthen their emotional regulation (Sutton Smith 2003; Spinka and others 2001; Gayler and Evans 2001; Panksepp 2007). Play introduces the child to a feeling of positive affect in response to mastery; when a child completes a game, or builds a den successfully, for example, they will be exposed to the powerful feeling of reward which will reinforce mastery motivation in the future. Essentially, the child will learn that creativity and the ability to be novel and flexible has increased their chance of

success, which also reinforces the likelihood of them using these skills in the future, again increasing their likelihood of success (Panksepp 2007; Burghardt 2005; Meire 2007; Martin 2007).

Recent research has begun to hypothesise the relationship between play and the stress response system through risky play which is thrilling, involves uncertainty and includes the following six categories: play at speed, at height, with dangerous tools, near dangerous elements, rough and tumble play, and play where there is a chance of getting lost (Sandsteer, 2007). It could be, that through continued exposure to situations which are risky enough to encourage a feeling of excitement (arousal), but not risky enough to place a child in any real danger, the child can rehearse the management of these feelings. This encourages better regulation of arousal, potentially leading to a reduced stress response in the face of real danger which allows for better executive functioning and decision making in genuine threat situations. The child has been able to model different decision-making scenarios through risky play, with immediate feedback on the impact on arousal levels, which allows them to store a bank of problem-solving strategies for use in real threat situations (Sheets-Johnstone 2003; Flinn 2006; Burghardt 2005; Greenberg 2004; Siviy 1998).

The attachment adaptive system is powerfully strengthened through play. Through play, identity is developed as children explore who they are and who they would like to be (Guss 2005; Corsaro 2003; De Castro 2004). Children develop highly sophisticated attachment systems through types of play such as rough and tumble play, role play and pretend play (Goodwin 2006; Freeman and Brown 2004; Pellis and Pellis 2007). For example, rough and tumble play has been described as a *'safe and effective way to put our vulnerabilities on the line'* (Sheets-Johnstone 2003). The attachment

system is interconnected to other systems, Fantuzzo et al (2001) found that children who are more experienced at playing with peers show great cognitive, social, and physical abilities compared the children who had less experience. Play can also build social capital for adults too, as the parent is able to make wider links through connection with other parents (Weller 2007).

It will be shown in this thesis that a key place for play interventions to take place is outside in nature. After all, we are hunter gatherers by origin, and the play system was first experienced in the context of the outdoors. Human anatomy and physiology have remained relatively unchanged over the past 40,000 years (Astrand 1994). The fact that all children still have an innate need to play, regardless of culture, could indicate that that this is an evolutionary response aimed at equipping us with an adaptive skill set vital for the child's survival. Children could be hard wired to play in nature, supported by the fact that enriched natural environments, strong social networks, and enjoyment create the best opportunity for play and physical health (Burdette and Whitaker 2005). Wilson (1984) proposed the biophilia hypothesis that states we are all born with an emotional affiliation for other living organisms and nature inferring that play in nature may have much to offer for resilience interventions for children, due to the natural inclination the child has for nature. Humans tend to want to affiliate with and focus on the natural environment due to its benefits, both physical and mental (Gullone 2000). There are hints of the uniqueness of the relationship that children have with nature in the research. Biophilia refers to the innate affiliation that children have with nature, and research suggests that exposure to the natural world, during middle childhood, is very important for a child's emotional responsiveness and receptivity (Kellert 1985, Pyle 1993, Derr 2002).

Affordance-rich environments are assessed by the possibilities afforded to the user for action, due to the features of an environment. The greater the opportunity for diversity of actions afforded to the user of an environment, the more affordance-rich that environment is (Gibson, 1979). Nature is undoubtedly an affordance-rich environment; natural elements can be used as sources of play, and children have been found to play in more complex ways in nature for longer periods of time (Luchs & Fikus, 2013; Sambrorski, 2010) which exemplifies the exposure to the positive associations of play for the development of resilience. Evidence also shows that affordance-rich environments support play opportunities for children from diversity such as those who are less socially skilled (Barour, 1999; Dyment & Bell, 2008) and so it could be argued that exposure to play in nature could help challenge social inequalities and the negative connotations associated with this in relation to poorer educational outcomes and mental health problems (Brundy et al., 2011; Herrington & Brussoni, 2015).

Empirical research has emphasised that contact with nature is important for children, as it is intertwined with their well- being and health development (Wells et al 2003). Nature allows for unstructured play, a sense of freedom and independence which could help to promote resilience in the face of future adversities (Wells & Lekies, 2006). However, children are losing their sensitivity and connection to the natural world (Pyle 1993, Kahn 2002), and in line with this, the window of opportunity to study this unique relationship is being lost too.

A recent movement has seen the introduction of Forest Schools in the UK, mainly in pre-school settings or the early year stages of primary schools and there is momentum growing for acceptance of Forest Schools within the education macrosystem. Forest schools originated in Scandinavia and are closely related to the Danish early years programme, where a sense of connection with nature is central to the Danish notion of an 'ideal' childhood (Organisation for Economic Cooperation and Development (OECD) 2001). The Forest School concept was first brought to the UK in 1993 following a teaching staff exchange trip to Denmark. The Forest School Network was set up in 2002 and developed the following definition of Forest Schools:

"Forest School is an inspirational process that offers children, young people and adults regular opportunities to achieve, and develop confidence and self-esteem through hands-on learning experiences in a woodland environment."

Forest schools are characterised by the following:

- They involve the use of woodland
- Learning is linked to the National Curriculum
- Children are free to explore using multiple senses
- Contact with the children is regular
- A high adult to child ratio is needed

The Forestry Commission (2009) assessed the impacts of Forest Schools on children aged 10 – 13 with special emotional needs, finding that depressed mood decreased, and anger reduced. Although, Maynard (2007) gathered qualitative data across three Forest Schools, concluding that the portrayal of Forest School in reducing self-esteem

is over-emphasised, and the opportunities for environmental education are underemphasised in practice. However, the report concluded that the ethos of Forest Schools *does fit* well with recent curriculum frameworks, whilst also addressing the concerns about children's sedentary behaviour and 'risk averse' lifestyles. Overall, there is a lack of UK based empirical evidence regarding the benefits of Forest Schools. Slade et al. (2013) attempted to analyse the impact of a Forest School which was set up at Newcastle University and visited by local schools. Interviews were held with the parents, teachers and staff and it was concluded that the evidence for the benefits of schools was anecdotal, and a systematic approach was needed to properly assess the impact. There is also the issue of implementation surrounding sustainability. A Forest School Instructor must undertake formal training which takes a full year and requires time away from teaching to achieve this. If this teacher leaves, the Forest School cannot operate as intended. Also, a high staff to child ratio is needed which means that only a few children will ever be able to access the Forest School at any one time, or an increase in staff is needed. Additionally, there is a need to set up specialised equipment such as a fire pit. Typically, these provisions are used with young children and so this does not help embed a resilience provision for the whole school.

There appears to be only one study which has attempted to isolate the beneficial effects of nature-based play versus normal play empirically, without the need for a 'Forest School' approach. Authors Brussoni, Isikawa, Brunelle & Herrington (2017) created an intervention in two pre-school settings which involved changing the landscape for play. In the base line phase, 45 children were observed playing in their usual playground using a mixed methods approach involving the use of psychometric testing, observations, focus groups, spatial mapping, and accelerometers. The 'seven

C's' criteria for outdoor play (character, context, connectivity, clarity, change, chance, and challenge) were used to create new outdoor play areas using natural materials such as the addition of plants, mud, and bamboo shoots. Results indicated significant decreases in depressed affect, antisocial behaviour, and vigorous physical activity, and increases in play with natural materials, independent play, and prosocial behaviour. Improved socialisation, problem-solving, focus, self-regulation, creativity, and self-confidence were also noted by the teaching staff. The conclusions drawn were that outdoor play spaces are important for promoting children's well-being and development, more so than a regular play space.

However, although this study showed promising effects of nature-based play, it could be argued that these effects could have been even greater if the children had been allowed to access real nature. Was this really 'nature based' play when children had their usual play space converted using the seven c's? Seeing a plant in a playground may be a synthetic version in comparison to the joys of finding a plant, yourself, in a real natural environment. Fundamentally, did the intervention truly reflect the affordance-rich nature environment? This could explain the unusual decline of PA post intervention. The accelerometers indicated a significant decline in moderate to vigorous activity, although the spatial behaviour maps indicated that the intervention promoted more use of different areas of the play space, and that more aspects of the play space were used. The authors argue that the decrease in PA could be due to the increase in engagement with the activities, children were stopping more and were playing for longer in areas as they were drawn to the nature. Lots of other research indicates that play in nature increases activity (Coe, Flynn, Wolff, Scott, & Durham, 2014). Additionally, children's play episodes are usually longer, more complex, and

more diverse in natural play spaces compared to equipment-based playgrounds (Luchs & Fikus, 2013) so it may be the case that when children are allowed to 'loose play' in real nature environments (Louv 2008) PA increases as they want to spend longer exploring that environment. The present study is also limited as they only measured the children's use of the space at break time, which has a fixed time allowance. This tendency for children to move more in nature due to increased engagement appears to be an important feature of nature-based play, and this study was not able to capture this. In fact, perhaps it is this increase in PA which is so important in the relationship between nature, children, and resilience.

2.5.2 Assumption 2: GE could strengthen adaptive systems

Aside from the element of play, several adaptive systems could be potentially restored through GE. Wells (2014) argues that nature allows for a stronger social connection which could lead to better social relationships and enhanced resilience, which could link to the attachment system. Drawing upon Kaplan's Attention Restoration Theory (1983) which suggests that exposure to nature improves attention, thereby creatinga chance for the restoration of complex cognitive systems, Wells (2014) suggests that problem solving skills are enhanced in nature. This could strengthen the self-regulation system and the learning and thinking system. Chawla (2014) conducted an ethnographic study across six nature-based school sites and found that the natural environment facilitated the development of important protective factors for resilience, including competence, a sense of mastery, supportive social relationships, attention,

and focus, which could suggest that the attachment system, mastery, and self-regulation system are being strengthened. Chawla (2014) draws upon the psycho evolutionary theory of Ulrich (1983) which states that exposure to nature areas which are 'safe' is restorative as such settings are associated with survival, resulting in reduced stress and improved well-being.

2.5.3 Assumption 3: GE provides additive benefits through increased physical activity

As previously argued, what sets GE apart as a field of research from outdoor learning, is the focus on determining the additive benefits of PA in nature. Benefits associated with regular PA in young people can be physiologically health related, for example, reduced adiposity, blood pressure and lipids, CVD risk factors, and injury, with increases in strength, fitness, and bone health (Jannsen and LeBlanc 2010). The links between mental health and PA is in its infancy and the quality of evidence is not optimal, but it is remarkably consistent (Ekkekasis and Backhouse 2009). Many studies have found improved mood, reduced stress, anger and depression, a reduction in anxiety and a slowdown in cognitive decline linked to PA (Babyak et al. 2000), and some studies have found that exercise should be a first-line treatment for mild to moderate depression over antidepressants (Carek et al. 2011).

To begin to unravel the process through which exercise can help reduce mental illness, it is important to understand current thinking surrounding potential aetiology. Within the field of mental health, there has been a change in thinking from a 'nature versus nurture model' to a general acceptance among the medical profession that the process of development can be thought of as "nature dancing with nurture over time,"

(Sameroff et al. 2010). As outlined in Chapter 1, mental health problems can arise due to a vulnerability, such as a genetic predisposition or the prenatal environment. They can also emerge in early relationships. Alternatively, mental illness could arise due to exposure of chronic stress via ACEs which can lead to neurotoxic effects on the brain, known as the neurotoxicity hypothesis (Clow and Edmunds, 2014).

Clow et al (2014) have argued that complex neuronal circuits are involved in mental health conditions, and exposure to toxic stress during particularly sensitive developmental periods can affect the structure and functionality of the brain, which can lead to persistent mental health problems (Lupien et al., 2009). Toxic stress has been defined by the Centre on the Developing Child, Harvard University, as *"prolonged activation of stress response systems in the absence of protective relationships*" (accessed online). This is different from other kinds of stress – positive stress, which creates a brief increase in heart rate, and tolerable stress, which is characterised as a serious threat which increases heart rate and hormones for a longer period, (however this response is buffered by supportive relationships, and so is experienced as 'tolerable' for the sufferer).

The neurotransmitters dopamine, norepinephrine, serotonin, and acetylcholine have been implicated in the body's physiological response to stress, and PA has been shown to directly affect levels of these. This may shed some light on the link between exercise and improved mental health. Further to this, the hippocampus, which influences emotional and cognitive regulation, and is involved in learning, cognition and the stress regulation system, is particularly sensitive to the effects of physical activity. Tong et al (2001) found that after exposing rats to 3 weeks of exercise, the expression

of several genes in the hippocampus were altered; those that were involved in synaptic function and neuroplasticity were increased, thus enabling the hippocampus to recover, learn and adapt more quickly from damage. This could be linked to the adaptive systems, showing how exercise has the potential to increase resilience.

The link between exercise and the growth in the neuroplasticity has been associated with an an increase in brain derived neurotropic factor (BDNF). Animal studies have found that rats who ran voluntarily on a wheel had an increase in BDNF levels (Neeper et al., 1995; Cotman et al., 2007; Lazarov. et al., 2010). BDNF promotes neural growth and protects the hippocampus and cerebral cortex from ischemic damage, and enhances brain function through stimulation of synapse formation, synaptic transmission, and the promotion of long-term potentiation, making the brain 'ready to learn' through enhanced memory (Cotman et al. 2002). This creates a further argument for using exercise as part of intervention, as it could have the added benefit of increasing academic attainment through strengthening the hippocampus.

Another essential point is the link between hippocampi neurogenesis (which refers to the growth and development of neurons) and exercise. Only two regions of the brain are susceptible to neurogenesis in adulthood, the hippocampus and the subventricular zone. This ongoing 'window of plasticity' maintains optimal brain functioning and allows for repair (van Praag et al', 2002; Zhao, Deng & Gage, 2008). BDNF is a strong stimulant of neurogenesis (Cotmam et al., 2007), which could explain why exercise has been shown to stimulate neurogenesis in both young and old animals. Additionally, the release of opioids such as B-endorphin through exercise (known as the 'runners high') are known to modulate hippocampi neurogenesis (Raichlen et al., 2012).

Angiogenesis, which is the growth of new blood vessels to supply the new tissue acquired through neurogenesis is also increased through exercise (Cotman et al., 2007; Ekstrand, Hellsten & Tingstrom, 2008), ensuring maximal opportunity for hippocampi neurogenesis to occur. That being the case, through exercise, the individual has a strengthened hippocampus, affording them optimal executive functioning. This could well increase their resilience, which could buffer against the risks for neurotoxicity and subsequent mental health vulnerability. PA has also been shown to reduce the negative impact of stress on neurogenesis, hence it acts as a 'buffer' against the neurotoxicity of prolonged stress exposure (Chang et al., 2008; Cotman et al., 2007; Ekstrand, Helsten & Tingstorm, 2008; Yao, Lau & So, 2011).

High level cognitive functions such as problem solving, processing complex thoughts and emotions which play a key role in executive functioning are associated with the pre-frontal cortex (Ball et al., 2011). This area of the brain directly impacts an individual's potential for resilience since executive functioning is a major adaptive system identified by Masten et al (2006). Research with 14 older adults performed working memory tasks before and after completing PA (a cycling ergo-meter), a control group was also included. Results found that PA significantly improved performance on the working memory task and enhance activity in the prefrontal cortex (Tsujii et al., 2012). Additionally, Budde et al (2008) found greater attentional performances in adolescent school children following a short exposure of just 10 minutes of coordinated exercise, which is hypothesised to activate the neural connection between the cerebellum and the frontal cortex. Whilst the brain activity level was not measured, this study holds further promise for the implementation of an

intervention involving exercise within the school system, as there may be other educational benefits asides from resilience.

An additional consequence of being sedentary which has been put forward concerns the impact of physical abilities on school readiness. Pagani and Messier (2012) explored the impact of gross, fine, and perceptual motor skills on measures of school readiness in 522 pre-school aged children. They found a link between motor skills and math skills which was better able to explain school readiness behaviour than verbal skills, showing how vital these skills are for successful school transitions. Research suggests that a lack of exercise reduces the chance for infants to develop these skills, which can also impact the movement-pleasure link in the brain. The increase in disorders such as anti-social personality disorders (ASPD) and conduct disorders which are characterised by violence could be due the absence of this link; without the useful pleasure 'outlet' of movement, children are driven towards achieving this through other states such as violence (Jenson 2008).

The Transient Hypo frontality Hypothesis (Dietrich 2006) was developed to explain the mechanisms underlying the link between PA and mental health. Drawing on cognitive psychology and neurobiology, this hypothesis is based on the premise that the brain is competitive due to its finite metabolic resources. During PA, excessive neural activity involved in running motor patterns, and assimilating sensory and autonomic outputs, leads to a transient decrease in neural activity in parts of the brain which are not needed, mainly the prefrontal cortex area. As already described, this part of the brain houses many of the key functions of emotional regulation, memory and executive functioning which are thought to play a vital role in maintaining optimal

mental health. Because of the decreased activity in these areas, there is a chance for restoration and recovery, which could lead to strengthened mental health.

However, whilst this research makes a sound argument that PA can lead to improved mental health and developmental outcomes, it has not focused on PA that takes place *within* nature. Arguably, GE is a particular way of interacting with nature, and the synergistic relationship between PA and exposure to nature may be more nuanced; no differences would be seen between groups who are exercising in environments with no nature exposure versus those engaged in GE were this not the case.

PAPA

2.5.3.1 Physical Activity and Health

Given the significance of natural experiences in children's lives, coupled with the synergistic benefits of exercise, an increase in opportunities to experience both nature and PA together could be crucial for overall health status and quality of life (Frumkin 2001; Hartig et al. 2010; Maas etal. 2006; Van de Berg et al. 2007). Focusing on the PA element, a systematic review by Janssen and LeBlanc (2010) screened over 11,000 papers exploring PA in school-aged children and youth, extracting data on 7 health indicators (high blood cholesterol, high blood pressure, the metabolic syndrome, obesity, low bone density, depression, and injuries). In relation to physical health, the following conclusions were drawn; (i) There is a dose response relationship between PA and health outcomes, and to achieve substantial health benefits, at least moderate PA is required, (ii) for children aged 5-17 years they should achieve at least 60 minutes a day of moderate PA and (iii) more vigorous PA should be incorporated, including

activities which strengthen muscle and bone. In relation to the research on depression, only 6 studies found that the dose of exercise seemed to make a difference, with a small to modest effect of significant improvement in depression levels being observed in randomised controlled trials in high intensity activity trials. Although, in observational studies with self- reported levels of activity, the effect was greater for moderate compared to vigorous activity levels.

For younger children aged 0 – 4 years there has been less guidance on recommended daily PA guidelines, and this may be because society has the belief that these children are active enough (Timmons 2012). However, research shows that many chronic diseases present in adulthood can be tracked down to increased sedentary behaviours in early childhood,(Berenson et al. 1998; Napoli et al. 1999) and so it is necessary to understand optimum PA requirements in the earliest formative years. To this effect, Timmons et al (2012) carried out a systematic review of the research which focused on PA for this age group, across 22 articles. Health indicators of interest were adiposity, bone and skeletal health, motor development, psychosocial health, cognitive development, and cardiometabolic health indicators. Effects varied for the different age groups in relation to increased or high levels of PA; for infants there were improved measures of adiposity, motor skill development, and cognitive development, in toddlers there were improved measures for bone and skeletal health and in pre-schoolers, improvements in adiposity, motor skill development, psychosocial health, and cardiometabolic health indicators were observed. This evidence highlights the importance of ensuring optimum levels of PA from birth, and also helps to justify the need for early PA interventions.

In the 'Tackling Childhood Obesity' White Paper (2016) the Government pledged to use the levy money from taxation of companies using high sugar content in their foods to increase the amount and quality of PA in schools through the introduction of a Primary PE and Sports Premium. The UK Chief Medical Officers' recommendation is that each child aged 5 – 18 years should be engaged in 60 minutes of moderate to vigorous PA every day (across school and home). In terms of MVPA, moderate activity has been referred to by the American Heart Association as about 50-70% of your maximum heart rate, whereas vigorous activity is defined as 70-85% of your maximum heart rate and 3 – 5.9 metabolic equivalents. Moderate activities include those where you can still talk, without pausing for breath, such as a brisk walk or bike ride, whereas during vigorous activity you cannot talk without pausing for breath, such as running.

According to the Official for Statistics, 2022 PA Data Tool (ONS 2022), levels of adherence to the chief medical officer guidelines for children aged 5 – 18 years that each child should be engaged in 60 minutes of moderate to vigorous PA every day still remain lower compared to pre-pandemic data but are holding stable at 44.6%. There were significant differences by local authority (e.g. Tower Hamlets 22.7% versus Wandsworth 63%) and ethnicity (e.g. White British 44.7% versus an average of 37.4% for members of BAME groups). Finally, variation was seen in age, with younger children in Years 1 and 2 averaging 51.8%, Years 3 – 6 averaging 42.3% and Years 7-11 43.6% which may be due to increasing sedentary activities such as the use of social media/online gaming (accessed online 6th December 2024 PA data tool: statistical commentary, January 2022 - GOV.UK).

These findings highlight that i) more children are physically inactive in the UK than active, and ii) health inequalities in PA are experienced from a young age. It must be highlighted that as this is national data, the final averages are likely to mask lower national averages of PA in regions where social deprivation is higher, since low PA is associated with social and economic problems (Public Health Include 2020). In addition, this data was captured through the Health Survey for England (HSE) over 7 days, where children over 12 are interviewed with responses verified by parents, and children under 12 and their parents complete a questionnaire. This is self-reported data, without the use of a clinical measurement such as a heart rate monitor or accelerometers to triangulate the participant's accounts. Research also identifies that self-report measures are less robust in measuring light or moderate activity (Shephard 1999;2003) and can be subject to social desirability, especially in younger populations (Lassenius et al., 2013). The nature of childhood PA also differs from adults, as children often exhibit sporadic bursts of intense PA and have difficulty in recalling their levels of PA accurately, meaning self-report measurements related to total time of activity may not be reliable (Sleep et al., 1996; Andersson et al., 1995) meaning caution should be applied in interpreting the figures as they may over inflate actual levels of physical activity.

Research has found that a combination of physical inactivity and obesity in childhood tracks more strongly than levels of physical activity, and contributes independent risk factors for Type 2 diabetes, cardiovascular disease, cancer incidence and mortality (Telema et al 2014; Hayes et al 2019; Pulgaron et al 2014; McCrindle et al 2015). In addition, there are indirect disadvantages from inactivity and obesity, including low childhood self- esteem and psychological issues.).

PA has been hypothesised as being an important factor in reducing mental illness across the life span, (WHO 2016). A recent systematic review synthesised the literature on school based physical activity, mental health and children aged 12-18 years (Rocliffe 2023). Of the 20 papers which were extracted it was concluded that significant positive effects were seen from interventions which with minor modifications to the typical school provisions. Outside of the education setting, research shows that children who are physically inactive are more susceptible to developing a mental health problem which tracks from adolescence into adulthood (Shlack et al. 2020). Furthermore, there has been a global call for PA promotion strategies, which increase the levels of PA to promote the mental health and well-being of adolescents, to help reduce economic and health service burden of mental illness and associated health problems (Teychenne et al., 2020).

Taken together, this creates a clear motivation for governments to introduce cost-effective interventions to introduce PA across the childhood trajectory as part of policies to reduce the likelihood of disease and morbidity later on in life (Hayes et al 2019; Public Health England 2020). Given that all children aged 5 years are eligible to attend a state school, the use of school-based intervention, available for all children across all levels of deprivation, and which incorporates PA, presents a timely opportunity for a low-cost intervention which could pay valuable dividends in health promotion terms.

2.5.3 Assumption 4 GE activates a 'Green Mind' (Pretty et al., 2017)

Green Mind Theory (Pretty et al., 2017) has been specifically created to explain the route through which activities such as GE offer benefits for improved well-being. This theory links the human mind with the brain and body and connects the body into natural and social environments using a 'green mind' metaphor. A metaphor for brain functioning is used: the bottom brain, which is the impulsive driver of the fight or flight response behaviours through sympathetic activation, and the top brain which utilises the cortex and so is slower to react and the driver of parasympathetic activation and rest. The bottom brain is referred to as 'red' and the top brain as 'blue'. The 'green mind' can foster more use of the blue brain and reduced use of the red brain through activities that bring immersion-attentiveness, such as nature engagements, social engagements, or craft engagements. The authors of this theory propose an explicit call to investigate what green mind interventions would work best for 5 – 11-year-olds.

2.6 Section Summary

There is a large body of evidence which attempts to explain the effects of being in nature. However, these are not always explicitly linked to mental health; the focus is more on well-being and they do not account for the impact of PA in nature. Current research into PA presents a physiological account of the effects of PA on mental health, but it is not clear what, if any, psychological factors mediate this process, or how PA in nature might impact this. The Green Mind Theory has been a major development in linking these benefits within the context of nature, but this has not focused on mental health specifically and evidence for children is lacking; this is an area where more work is warranted. Furthermore, a pathway through which exercise interacts with nature to improve mental health *in a child specific* population, is not provided. Given

that this review has already highlighted the importance of recognising that the child and adult interactions are likely to be qualitatively distinct, development of a theory of change that accounts for improvements in mental health through the interaction of movement – in nature – for the child, would be useful. Arguably, an exploration of these external and internal processes afforded by natural GE experiences could contribute to a greater understanding of the benefits of GE for children and the development of more effective interventions.

2.7 Making the case for a GE intervention within the school-based system

There is potential for resilience to be addressed in the school system. The challenge now is to address the 'square peg in a round hole' paradox; we have the theory as to what constitutes resilience to reduce the impact of adversity, and a good understanding of how the school system has the potential to operate as a powerful microsystem from which resilience can be developed; but it is difficult to influence the academically driven school system. If an intervention is going to be a) successful, b) acceptable and c) sustainable, then the literature suggests that the following requirements should be met:

- No need for 'will or skill' from teachers, yet easily sustainable without a trained facilitator
- Flexible with the existing academic curriculum, and synergistic with it
- A strong evidence base that it will strengthen academic ability to help reduce the attainment gap
- Targets social inequality
- Directly measurable and sustainable outcomes in the short, medium, and long term.

- Embedded within resilience theory to conceptually strengthen the current SEAL provision
- Broadens the curriculum experience for all children

This thesis postulates that the existing model is not working well; it is time for a different approach to tackling the problem of strengthening the resilience of our young people. Consideration should be given to the context within which these interventions are being delivered to understand the mixed effects. The failure of many of these programmes to consider this in their development may have contributed to their limited effectiveness.

A large body of evidence points to the benefits of exposing children to nature within the school setting, although little research focuses on mental health as a main outcome, and this has not been located within the resilience theory. Most research focuses on outdoor learning, and fewer studies focus on PA in nature (GE) specifically. The current field has focused on outcomes from being exposed to nature, and an understanding of the causal mechanisms which might be underlying these changes is lacking. Very little, if any research, has explored the pathways through which GE could have the potential to improve mental health, and perhaps increased resilience.

Exercise itself can serve to increase well-being and has powerful plasticity properties, leading to structural changes in the brain.What happens when this is 'mixed' with nature? A greater understanding of the use of GE within primary schools is needed to develop a theory which explains how GE can improve mental health through strengthened resilience. This is an important gap which needs to be addressed to create

the blueprints for future interventions which locate GE within the current school-based zeitgeist for addressing childhood mental health problems.

Aside from understanding the culture of accountability, within the school context, the importance of the role of understanding the culture surrounding using nature-based programmes in the UK Primary School system is key.

The prominent work of Sue Waite (2010), 'Losing our way?' reports the decline in access to outdoor learning as children move through the school, a risk averse culture which can limit the nature of the experiences to which children are exposed and a commitment to a pressured curriculum. Other barriers also include a lack of funding and a lack of training in how to use the spaces. Additionally, it was noted that the value of simply allowing children to 'let off steam' by playing in nature was not strongly recognised, with importance being placed on more complex learning benefits. Being that this paper was published in 2010, and there have been several changes in the Government and education policy since this time, with an ever more increased emphasis on 'closing the gap', and cuts in funding, the context of the school within which GE takes place needs revisiting. It is also important to note that the emphasis on this research, and and most of the research which takes place within the school context, is focused on 'outdoor learning'. Whilst this will undoubtably involve GE, GE is a different construct, and within this thesis, the focus is on the use of GE as an intervention to improve mental health through PA whilst being exposed to nature. It does not need to involve an academic learning outcome. Therefore, the perceptions of stakeholders on the use of GE to improve mental health within a school context may be different. This indicates a significant gap in the research which needs addressing.

Another context is the potential impact of area, rural or urban, on the experiences which children have with nature within schools, and how this might impact the outcomes and the ability for schools to provide a meaningful experience. Dyment and Bell (2007) carried out a survey across 59 schools in Canada, on teachers, parents, and administrators. It was found that 'greening' school grounds, in contrast to 'rule-bound' asphalt and turf playing fields, diversifies the play repertoire for children. This is because they invite children to jump, climb, dig, roll play – and move in ways which nurture their development. Different school locations offer different levels of 'greening', which could moderate the GE experience and outcomes for the children.

To the researcher's knowledge, there is limited evidence on the views of parents, teachers, and students regarding the experience of nature-based provisions in UK primary schools, although more evidence is gathering outside of the UK. A study by McFarland, Zajiecek and Wallczek (2014) examined parental attitudes towards nature and how much time their children actually spent outdoors. 69 Texan families with children aged 3 – 5 years were surveyed, and there was found to be a moderate, statistically significant relationship between parental attitudes towards nature, their child's outdoor recreation and how much free play their child spent outside. The authors noted that whilst parents seemingly held positive views about nature, and their child's recreational activities outside, this did not translate to much time being spent outdoors, in this case between 30 – 60 minutes a day which is less than the recommended 60 minutes of PA per day. The authors suggested that a construct aside from parental attitudes may be affecting their child's interaction with nature,

concluding that more research into the interaction between parental behaviours and children's interactions with nature is warranted.

Taken together, it is clear there is a need to understand the wider contextual issues which could influence existing GE provisions within the school context and any future interventions which are developed, if they are to be successful within the UK Primary School system.

2.8 Rationale and research objectives

The research presented has demonstrated that mental health problems are increasing, the beginnings of which emerge in early adolescence. This makes primary school a key context within which protective processes should be put in place to help buffer vulnerability to mental health problems.

This literature review has created the rationale for the consideration of a school-based GE programme to address the increasing mental health issues within primary school children in the UK. Evidence from child and adolescent populations shows strong links of nature exposure to improved mental health outcomes, and green care interventions have also proved successful for adolescents. However, before any intervention can be put into place, several gaps need to be addressed. Firstly, within a school context, there is mixed evidence for the impacts of GE on the mental health outcomes of children, and the unique relationship that children have with nature, which could mediate the link between GE and mental health, has not received much attention in the GE literature. Secondly, whilst there is a large body of evidence which reports the benefits of children being exposed to nature, only a few studies have begun

to link these to mental health, and fewer still consider how these may be achieved in the context of resilience. Crucially, this research is mostly focused on learning in the environment; GE does not have to be linked to any learning outcome to take place, and the experiences and benefits of this within the school context are less well understood. A theory of change which explains these processes through which GE could enhance resilience is needed as part of the development of any future GE intervention. This requires an in-depth exploration of the stake holder perspectives, the experiences of GE within Primary schools, and an understanding of how the context of the education system may influence this.

To address the above gaps, the overall research question for the current study is *"How is GE experienced in practice by children and teachers in UK Primary Schools?"*Stemming from this research question are 4 specific research aims which are as follows:

1. To scope out the existing GE provisions in a small number of UK primary schools
2. To explore the varying stakeholder perceptions and experiences of GE
3. To critically examine the context of the education system in relation to the delivery and outcomes of a GE programme.

   To develop a theory of change through which GE may enhance resilience to improve mental health, and the influence of context on this

CHAPTER 3

METHODOLOGY

This chapter will (1) outline the rationale for the methodology; (2) describe the sample; (3) provide a description of the data collection procedure; (4) provide an overview of ethical considerations; (5) discuss reflexivity and the role of the researcher and (6) describe data analysis procedure thus far.

The methodology of this thesis detailed below, changed from the original plan, and to provide contextual information it is important to be transparent in the full methodological journey of this thesis. Originally, this thesis was meant to be a mixed methods project, comprised of three studies (1) collate light touch stakeholder information on how a GE intervention for primary schools should look (2) create the intervention and (3) test the feasibility and efficacy of the intervention. Some of the initial interview/focus data collected from School A School B and School C were collected for this purpose. A second round of data collection from School C was collected within the scope of the new methodological framework. However, it was during this interviews that I realised the importance of considering the wider contextual factors surrounding the implementation of the GE intervention, which were not well understood. Further to this, I realised that there was no existing theory of change model upon which an intervention could be based. After my 2nd year of study and as a result of the VIVA upgrade examination, it was advised that I reposition my thesis to focus on the development of a theory of change model upon the principles of which a future intervention could be developed. The rest of this chapter outlines the justification for this re direction, and the methodology used to achieve this new objective.

3.1 Rationale for methodology

3.1.1 Rationale for a qualitative design

Qualitive research is used to explore the meanings and dynamics of social phenomena as the individual experiences them within their natural contexts (Lincoln & Guba 1985; Kvale, 1996). One of the research objectives within this thesis is concerned with understanding the contextual influences on GE provisions within schools and exploring the experiences which arise from these provisions. A strong case for the understanding of the role of context within which programmes take place has been made by realist evaluators, with Pawson and Tilley (1997) arguing that *"a particular programme will only 'work' if the contextual conditions into which it is inserted are conducive to its operation, as it is implemented"* (p 52). In other words, the question is not simply, what works? The question is, what works, for who, and in what contexts? This requires a move away from traditional experimental, cause and effect models, to the *"compelling need to open up the black box…."* (Rosenbaum, 1988, p. 32). In other words, we need to develop an understanding of the underlying contexts within which causations may occur. Arguably, qualitative (rather than quantitative) research is the best methodology to *'open the black box'*. Qualitative research can describe phenomena as experienced by participants, to unravel issues and examine how they might be comprehended (Ritchie et al., 2014), to provide a 'thick description' of the real-world phenomenon being studied (Geertz 1973). Furthermore, qualitative research can reveal factors which might shape programmes like GE, which may not be easily accessible or predictable, for example, the role of the organisations, or relationships between stakeholders within the GE provisions. Another objective of this thesis is to gather stakeholder feedback. Here, more marginalised perspectives can be

gathered using qualitative research, with Abma and Widdershoven (2011) stating that qualitative evaluation can enable insider perspectives to be better understood. In contrast, quantitative data, which is more connected to the experimental method, is concerned with identifying relationships between variables, to make predictions, or to test theories (Tolich and Davidson 2003). The emphasis in this thesis is on exploring complex experiences and understanding how these relationships may have arisen, which cannot be achieved with a quantitative methodology.

Finally, this thesis answers the call made by Ungar (2003) to increase the use of qualitative methods to contribute towards our understanding of the construction of resilience. Ungar (2003) suggests that two shortcomings can be addressed; the arbitrariness in the selection of outcome measures in resilience research, and the challenge in accounting for the sociocultural contexts in which resilience is constructed and occurs. The 'lived' experiences of GE specifically, as opposed to outdoor learning, within the sociocultural context of the UK school system, is not well understood, and an understanding of the nature of GE within the school setting is arguably more useful than measurements of 'arbitrary outcomes'. Ungar (2003) goes on to argue that qualitative methods are well suited to the discovery of unnamed processes relevant to the lived experiences of the participants whom the research is about, which is attuned to the aim of this thesis.

3.1.2 Epistemological and Ontological Positioning

Epistemology is concerned with the ways in which we can come to know about the world (Darlaston-Jones 2007). Debates in science often centre on the use of a broadly positivist or interpretivist approach. Positivism refers to the objective study of phenomenon, and views reality as universal, objective, and quantifiable (Darlastin-

Jones 2007). Within a positivist positioning, empiricism is key; it is argued that reality is based on what is directly observable. The role of the researcher is to apply scientific methodology to identify and 'see' this reality. There is little notion of the participants as a *perceiver* of their world, and a lack of consideration that the person may also be a *conceiver* of their world who constructs their reality (Darlastin-Jones 2007). It is asserted that knowledge about the world can only be acquired through direct observation of what can be experienced through the senses. Interpretivism, on the other hand, argues that there are ways of knowing about the world other than direct observation. Kant (1781) argued that humans make interpretations about what the senses tell us, which transcends basic empirical enquiry, and which also includes the participants' and the investigators' interpretations. Another idea within this approach, postulated by Dilthey (1860s-70s) emphasises the importance of understanding the 'lived experience', in the sense that there is a connection between the social, cultural, and historical contexts within which any phenomenon takes place. Constructionism is an extension of lived experience and states that *"reality is socially constructed by and between the persons who experience it"* (Gergen, 1999). As such, reality is unique to the individual and is based on our own understanding and experience of the world (Berger & Luckman 1966), although it will be shared in some ways.

Critical realism is a branch of philosophy which distinguishes between the 'real' world and the 'observable. *"Critical realism is concerned with mapping the ontological character of social reality: those realities which produce the facts and events that we experience and empirically examine"* (Archer et al 2016); in other words, the world as we know it is constructed from our observable perspectives and experiences. Critical realism is often viewed as sitting in the middle of the positivist/interpretivist

debate. Whilst critical realism is concerned with the nature of causation, this is not at the expense of an interpretivist viewpoint; critical realism is concerned with exploring the complex structures and/or processes which contribute to the reality which produces the facts and events that we experience. This approach utilises a method of explanation and interpretation, *"the aim is an historical inquiry into artifacts, culture, social structures, persons, and what affects human action and interaction"* (Archer et al., 2016). This is in line with the objectives of this thesis, which are to understand how the context of UK Primary Schools and the views of stakeholders about GE provisions, go on to shape the GE experience for the child. This thesis is also concerned with causation in so much as how these contextual influences may contribute to the potential effects of GE provisions on resilience.

Ontology concerns itself with the nature of reality, and so what it is there that we can know about (Richie et al., 2014). Broadly speaking, my world view, or ontological positioning, is attuned to critical realism. That is, that there is a single reality, which exists across several levels, which consolidate this reality over time. These include

(1) the empirical domain that is experienced through our senses,
(2) the actual domain that exists whether or not it is observed and
(3) the real domain, which consists of underlying processes (Bhaskar, 1978; Robson 2002; Ritchie et al., 2014 p.5).

Within this thesis, the real domain refers to the underlying mechanisms that could underpin a link between GE and resilience, shaped through social and cultural contexts (the actual domain), creating an experience, which is only observable through the empirical domain.

Finally, I believe that emphasis should be placed on the participant's and the investigator's interpretations and understanding of the GE experience, as well as the 'lived experience' of GE programmes within their natural school settings. Therefore, this thesis aligns itself with an ethnographic methodology which is defined and reviewed in detail below.

3.1.3 Ethnography

Ethnography investigates the cultural norms, values and actions that are characteristics of a particular group, community or setting through immersion of the researcher (Richie et al., 2014). The objective is to gain insight into a particular social world, and acquiring an intimate familiarity with it, through immersion in the day-to-day practices of the group. The notion of culture is central to ethnography, with a guiding assumption that any human group of people interacting together over an extensive period will develop a specific culture (Patton, 2002). Goodenough (1971:21-22) refers to culture as a collection of behaviours and beliefs that constitute standards for deciding what is, what can be, how one feels about it, what to do about this and how to go about doing this. Ethnography has been used to study the role of culture in contemporary society, social problems, and change of various kinds (Chambers 2000). It has also been used as an approach to programme evaluation (Fetterman 1984, 1989), and applied to education research (Ilhoh and Tierney 2013).

This method was selected over other qualitative methods for the current thesis as it is in line with the aims of this research, which are concerned with deep explorations of varying stakeholder perceptions and experiences of GE, critically examining the delivery and outcomes of GE programmes in the context of the education system, and

understanding the contexts involved. Taken together, the hope is to create a new conceptual understanding and framework which better explains the GE experience in the school setting, and how it can influence the resilience of children.

Ethnographic research attempts to gain an 'insider perspective' by offering a thick description of lived experience to provide explanations and descriptions of their worlds which are rich and complex (Hammersley and Atkinson 2007). The salient features of ethnography are in line with the aims of this research:

(1) ethnography focuses on the day-to-day activities which occur in natural settings; my approach looks at existing GE provisions within school settings

(2) unstructured and flexible methods are incorporated; thus, my research makes use of interview, focus groups and fieldwork, with the use of each approach being dictated by the setting and what is possible

(3) the researcher is actively involved in the field or with the people in the study; hence I joined the GE groups across several sessions/weeks and was an active member of the group who joined in with activities and communicated with the group throughout the entire process – additionally I have insider experience through my role as an educator

(4) the researcher explores the meaning the activities have for themselves and for the wider society; this is a central aim of this thesis (Brewer 2000: 26). This is why I did not use an established observation tool when collecting data. I took unstructured field notes so I could be as immersed in the fieldwork as possible, without worrying that I needed to record the data in a particular fashion. I recorded what 'spoke to me' in the moment.

Participant observation is a traditional method of ethnography, highlighting the central importance of the researcher participating in the field-

"In people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions; in fact, whatever data are available to throw light on the issues with which (the research) is concerned." (Hammersley and Atkinson, 2007:3)

Traditional ethnography locates the role of the researcher as being true to the perspectives of those being studied, to understand the *'emic'* or 'insider perspective', whilst maintaining the ethnographer's perspective as the *'etic'* or outsider view. However, Amit (2000) suggests that it is not possible for the researcher to separate themselves entirely from the field.

Insider ethnography is a type of ethnography in which the researcher is already a member of the institution. It has been defined as a collection of research methods that provide access to and insights of daily life in a way that would not be possible for researchers 'outside' of the setting to collect on their own (PMC 2022). Based on this definition, I consider myself to be an 'insider' within this thesis, as I have 14 years of experience of working within the teaching profession. I am part of the education culture, and I do believe that my feelings, emotions and understanding of cultural meanings have a role to play in the fieldwork and interpretations of the data, beyond that which may be seen in a traditional ethnographic approach. My own perspectives have become shaped through involvement within the field, and thus have also become part of the data. The role of the researcher section in this chapter offers a fuller account of my insider perspective.

It should be noted that observations of GE provisions did not take place in all school settings. In these circumstances, the schools are referred to as 'additional education

settings' - only focus groups or interviews took place, in the absence of field work. It is beyond the scope of this study to conduct a full ethnographic approach in all settings. Therefore, a selective ethnographic approach was taken to make the analysis more robust - it enabled a wider scope of experiences to be captured across UK Primary School settings.

3.2 Sample

3.2.1 Sampling strategy

Substantial difficulties can present themselves when seeking permission from gate keepers for the use of school-based samples. For example, due to time restrictions within the education setting, children and teachers may be harder to access since they are focusing on learning. To counter this, convenience sampling was used, drawing on the researchers' contacts with local schools that emerged from previous experience within the education sector. A database of schools which were known to the researcher yielded a sampling pool of Primary schools within the Oxfordshire and Buckinghamshire schools districts. From this pool, schools were contacted by the researcher to find out whether they had a GE provision. Schools were then chosen on the basis that they demonstrated some form of GE being used within the school setting (Bryman, 2012; Creswell, 2013; Patton 2002), and that there was enough diversity between these provisions that a wide scope of experiences in relation to GE could be explored. This process was iterative, with additional or supplementary samples being selected based on initial contributions, to refine emerging categories stemming from the analysis process.

Factors which were important in relation to the selection of cases were the location of school site (to include rural and urban schools) and the percentage of Pupil Premium

(PP) students (below/average or high). Pupil Premium rate refers to funding to improve outcomes for disadvantaged students (low-income families) in England, and/children who are from military families (Pupil Premium – GOV.UK 2021). A PP child is one who qualifies for this additional funding. Schools with a higher percentage of PP students, have more children from low-income families. Evidence suggests that children from disadvantaged backgrounds are more likely to have experienced adversity and face more challenges in reaching their potential within the education setting and perform worse when compared to non-PP pupils (Pupil Premium – GOV.UK 2021). Also, schools are assessed on the attainment of PP students as an indicator for their Ofsted rating. Taken together, this seemed an important contextual factor that needed to be considered. A note was made of the PP percentage to ensure that a diverse sample was selected in terms of PP. A mixture of schools with an average or below average amount of PP students (<14%, Department of Education 2017) and a high amount of PP students were recruited (>14%, Department of Education 2017). Location of the school site was selected as an important characteristic as I perceived that a potential barrier could be access to green spaces within the school sites, with schools based in rural areas being more likely to offer a richer green space environment than schools in an urban environment (although some elements of rural green spaces are not easily accessible). Therefore, sensitivity was shown to the school setting in the selection process, with schools being selected which reflected both a rich nature setting, where the school was surrounded by trees (classified in this research as rural), and a more restricted access to nature exposure, where the school was based in a more built-up environment (classified in this research as urban). These schools are described in detail below, following a description of the recruitment process.

3.2.2 Recruitment

In the first instance, the gatekeeper Headteacher/centre manager of each education setting was contacted by the researcher with information about the study, and permission was obtained to recruit their site into the study. In most cases, I met with the gatekeeper in person to talk about the study in more detail.

Where possible, up to 3 different groups of participants were sought at each school for interviews/focus groups including students, teachers/GE volunteers, and parents. This was to cover the study objective of gaining a wide range of stake holder perspectives of the GE experience, and to allow a greater depth of exploration of the systems surrounding the GE provisions within each school. A letter containing information about the study and a request for parental consent was sent to all parents of selected schools via parent email or hard copies. Parents self-selected their children and/or themselves to take part in the focus groups/observations. An information sheet and consent form were circulated to all teaching staff, who self-selected to take part in a focus group. The Headteacher also gave permission for observations to take place of the children involved in a GE provision, and parents were notified of this. Parents were asked by the Headteacher to 'opt-out' if they did not want their child to be included in the observations. In this instance, I made a note of the child, and they were not included in any of the observations. In two settings consent was not obtained for some of the children and so these children were not included in the field notes.

The Headteacher sent out the information sheet about the study and parental consent forms to all teachers and parents whose children were involved in the GE provision. Parents and teachers gave their consent for their child/themselves to be involved in the

study. To add depth of understanding of stakeholder experience, and to ensure a more robust analysis, sub population stakeholders from additional school settings outside of the selected cases were visited for their expertise in using GE with children. In these instances, after permission had been granted from the Headteacher, these individuals were approached directly with information sheets about the study, and signed consent to be interviewed was obtained.

3.2.3 School Sites

The ethnographic approach was taken across 5 Primary School sites, where a mixture of interviews and/or focus groups and observations of green provisions took place. The profile of these schools is described below. Field notes were taken which contain detailed observations and reflections on the content and experience for each session attended at each school, which are discussed further below.

School A

School A is a rural primary school in Oxfordshire, with an average number of pupil premium students. The school grounds are surrounded by woodlands. The school has a Forest School which is used by the Early Years Foundation Stage Children and a large field which is used for P.E and is accessed for play time by the children in the summer term. The GE provisions being explored at this school were an outdoor running club for Key stage 1 (for pupils aged between 5 – 7-year-old, in Year 1 - 2) and Key stage 2 (for pupils aged between 8 and 11, in Years 3-6) which was observed across several sessions.

School B

School B was set in a rural village within Buckinghamshire, with access to a large playing field on site. Their pupil premium rate was not obtained at the time of the study. At the time of visiting this site, the school had only just set up their first ever Forest School, for Key Stage 2 students (Year 5 and Year 6). The group consisted of just girls to start with, and two boys with Autism joined in another session, although they were not formally observed. The Forest School was not 'fixed', as in, there was no permanent equipment left out. Each session, the students had to 'set up' the Forest School, by rolling heavy logs into a fire circle. The researcher had consent from parents to formally take notes on all the students.

School C

School C is a rural primary school based an hour outside of London, with an average amount of Pupil Premium students. The school grounds are surrounded by vast woodlands, and the children access the field for P.E and playtime in the summer. The school was in the process of creating a 'green curriculum' which aimed to build issues of sustainability and links to conservation throughout the entire curriculum. The researcher had permission to take formal observational notes on 2 of the children at an after-school gardening club. Additionally, two off site residential activities were observed. Regarding the offsite residential activities, the Headteacher gave global permission for the researcher to attend the activities and take notes. Parents were informed that I would be visiting and had the opportunity to 'opt out' of their child being used in the observations, which one parent decided to do.

School D

School D was characterised as an urban school setting based in Buckinghamshire. The school site had no green outside space and was surrounded by houses and industrial buildings. This is an infant school, and so children only attend from reception, through to Year 2. This school draws from several areas of deprivation, and so there was a high pupil premium rate.

School E

This school was set in a rural village, surrounded by a local housing estate. The school had access to large playing fields and nearby woodlands.

Additional Schools

As a means of increasing the robustness of the data, six additional education settings were selected through existing connections that I had with teaching staff present at the school. Each school offered a green provision, and interviews were held with teachers and/or green provision leaders. In one school, a focus group was held. Two of these settings were Pre-Schools, the rest were Primary School.

3.3 Data Collection

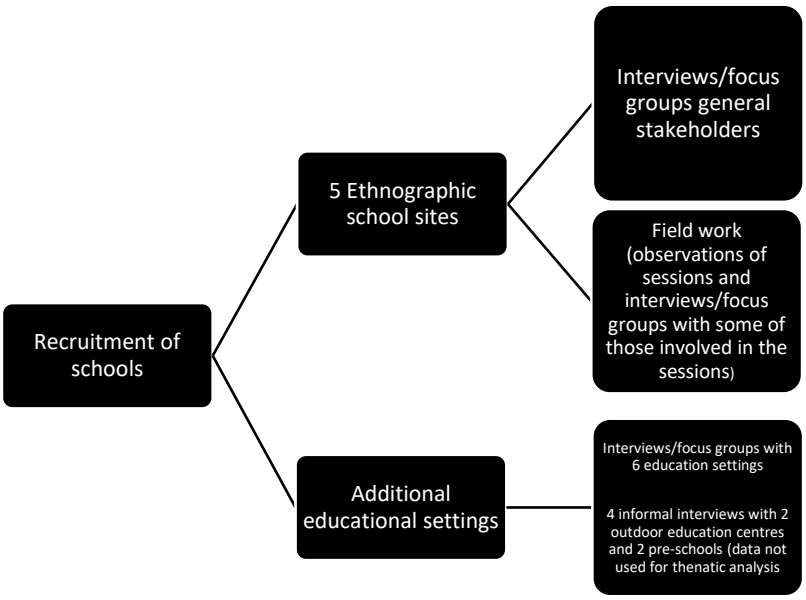
The data collection within the ethnographic approach involved extensive fieldwork, drawing on a variety of methods, including participant observations, interviews, and focus groups (Reimer 2008). Table 4 shows the data collected at the ethnographic school sites, and Table 5 shows the data collected at the additional school sites. In total, 12 one-to-one interviews, 12 focus groups (n = 59) and approximately 14 session observations took place across 5 separate school sites, varying in length, between half an hour each, up to a whole day. Data across the differing school sites was collected pre-pandemic, commencing in January 2017 and ending in June 2019. Data collection ended when it was agreed with the supervisory team that saturation had been achieved. This thesis adopts the following definition of saturation; “the point at which gathering

more data about a theoretical construct reveals no new properties, nor yields any further theoretical insights about the emerging grounded theory" (Bryant and Charmaz, 2007 p.611) which was judged as the development of no new themes from data collection in relation to all the research objectives.

For further clarification, Figure 2 illustrates the data collection processes used in this study.

Data collection was concerned with examining the stakeholder perceptions and overall experiences of GE. This involved some focus groups with parents, teachers/facilitators, and children. All educators' focus groups took place in the participants' own professional setting. Parent focus groups were held at a mutually convenient location. Child focus groups took place in the school setting and were all supervised by a member of staff. In some instances, one-one interviews took place with teacher/parent volunteers, within the school setting.

Figure 2. A graphical depiction of the data collection



3.3.1 Data Management

A professional independent transcriber, who also signed a confidentiality statement, was used to transcribe the child focus groups for School A (6 transcripts).. A professional transcribing agency transcribed the facilitator interview for School B, all interviews for School D and E, and 5 out of the 6 additional school settings – confidentiality was guaranteed. All other transcripts were transcribed by the researcher. As part of this process, all identifying names and places were removed from the transcripts and codes were given instead to represent participants to anonymise the transcripts. Where possible, word-for-word transcribing was used, with care taken to capture any punctuation, which, if not reported, could alter the meaning of the data.

Participants were assured that all data information collected would be anonymised and stored in accordance with the 2018 GDPR data protection laws. They were reminded at the beginning and end of the data collection process that they could withdraw from the study at any point. One participant, a teacher, did disclose something very personal during the focus group, regarding the high level of stress she felt she had experienced in a previous teaching role. She approached the researcher afterwards and asked for that piece of data to be removed from the research. The researcher made a note of this and deleted it from the transcript.

3.3.2 Focus groups

A focus group interview is described as *"a carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, non-threatening*

environment" (Krueger & Casey, 2009, p. 2). As has been previously discussed, I believe that emphasis should be placed on the participant's and the investigator's interpretations and understanding of the GE experience, as well as the 'lived experience' of GE programmes within their natural school settings. Providing the philosophical underpinnings have been clearly outlined, focus groups are deemed an appropriate tool to collect more in-depth data about the phenomena being studied (R. S. Barbour, 1999). I believe the use of focus groups in this thesis is in line with this epistemological positioning. Moreover, they are considered a valuable data collection method when working with young people. They are reported to create a safe space. - Liamputtong (2007) states that speaking with others 'like you' may be less intimidating than just speaking to a researcher. This may go some way to alleviate some of the power imbalances seen between the interviewer and the participants; an issue that may be even more problematic when working with child populations (Shaw, Brady, & Davey, 2011). Because some of the children involved in the focus groups were four years old, it was vital that they felt comfortable throughout the whole process. It was felt that a one-to-one interview may be intimidating for young children, This is why focus groups all took place in a familiar environment – their schools. In addition, very young children have a more limited vocabulary, so it was felt a focus group, where children can bounce ideas off each other, may help produce richer data. Many of the child focus groups took place before the methodological repositioning so the data collection here was more light touch. In line with the ethnographic methodology chosen for this study, participant observations were used to provide insider perspective. The importance of active participation is highlighted by the Department of Education (DfE 2023) who recommend adherence to levels 4-8 of Hart's Ladder of Participation which states that children should be equal decision

makers in the research process. A such, unstructured observations were used for two main reasons (i) this is a novel area, and I did not want to use an observation tool which may have restricted the breadth of data collected, or bias my data collection through the use of pre conceived categories and ii) using a tool throughout the observations may have acted as a barrier to interacting with staff and students, compromising the integrity of active participation.

However, because the new objectives were to draw out the underpinning mechanisms behind GE and resilience, photovoice may have been a more useful methodology as it helps to further draw out the perspective of the child (Amit 2013). This method gathers visual information from the child, who is asked to take photographs in relation to a research topic, to highlight what is important to them. This was not chosen at the time as it was thought that some of the children may be too young to operate a camera, and the original purpose of the qualitative research was a light touch exploration of stakeholder views. However, this would have been a useful addition, and this is acknowledged in the discussion.

The use of focusgroups as added potential to capture complex social interactions (Hollander, 2004) which adds to the uniqueness of focus groups; participants may challenge or validate each other's opinions (Wellings, Branigan & Mitchell, 2000). This unique insight can increase the richness of the 'insider perspective'. Taken together, this may lead to data which is rich and provides an insightful account of the GE experience. This was considered very useful for deepening contextual insight intothe education and familial culture; during the focus groups it was many of the

conversations amongst the teaching professionals and parents which offered richer insights which may have been lost ifan interview alone had been used.

The size of each focus group was between 2 – 7 participants. Smith (1995b) argues that small group sizes are better for more sensitive topics, and given the nature of this research, this was deemed particularly appropriate for teacher and parent focus groups. For example, one teacher felt able to disclose about a personal experience in the classroom which caused her so much stress she chose to leave the school – perhaps in a larger group she may not have felt able to disclose. Within the child focus groups, I felt that the first topic on emotions was not really needed and could just be used as an 'ice breaker' rather than generating meaningful data. Pictures were used to show different emotions being expressed by a young girl, and participants were asked to describe the emotion she was feeling. This was a relatively easy task, the purpose of which was to encourage group cohesion and a relaxed feeling in the child groups to build rapport.

3.3.3 One-to-one interviews

One-to-one interviews are one of the most common methods of data collection within the qualitative field (Briggs, 1986). The goal is to gain the perspective and experiences of the participant, so that their language, meanings, and concepts can be captured in relation to a topic determined by the researcher (Rubin & Rubin 1995). Semi-structured interviews, which follow an interview schedule, but allow for follow up questions, were chosen for this thesis, as they allow participants some freedom to share experiences they feel are important to them, as well as allowing the researcher to cover the topics important to the study. One to one interviews were used with GE

practitioners and one senior leader to allow a deep understanding of their experiences in implementing GE programmes. It was felt here that a focus group may 'dilute' the richness of their unique experiences, which may have lessened access to their own insights.

Clarke, Kitzinger & Potter (2004) highlight power imbalances in interviewing, with some participants viewing the researcher as an 'expert' which could create a relationship where the interviewer holds the power. To hand this power back, every care was taken to ensure that a good rapport was built with the participants; the first few questions were far more general, to ease the participant into the interview process.

It also needs to be noted that for some interviews, 'acquaintance interviewing' took place, a concept coined by Garton & Copland (2010), to describe when the participant is known to the researcherprior to the study being conducted. In these instances, the dual relationship meant some additional safeguards were put into place. For example, the interview process was not discussed outside of the interview setting. However, my pre-existing relationship with these participants may have shifted the dynamics somewhat; perhaps they felt more able to be honest about their views. On the other hand, they may have felt less able to share more personal views, due to the lack of anonymity.

Table 4 Data collection at Ethnographic School Sites

	School A (WP)	School B (C)	School C (MR)	School D (WM)	School E (MF)
Child focus groups	n = 5 focus groups (20 participants)				
Teacher focus group/interviews	n = 1 focus group (2 participants)		n=1 focus group (3 participants)		
Parent focus group	n =1 focus group (4 participants)		n= 1 focus group (4 participants)		
Child focus groups for those directly involved in an observed green provision		n= 1 focus group (3 children)		n= 1 focus group (4 children)	
Green provision leaders	n = 1 interview	n= 1 interview	n = 1 interview	n= 2 interviews	n = 1 interview
Fieldwork	Observations – Junior Joggers running group.	Observations – 4 weeks Forest School Year 5/6	Observations – 2 sessions allotment club Year 5/6	Observations – 4 sessions Forest School Reception	Observations – 2 sessions allotment club Year 2

Table 5 Data collection at additional school sites

	School 1	School 2	School 3	School 4	School 5	School 6
Teacher focus group/interviews			N = 7 Focus group			N = 1 interview
GE facilitator interviews/focus groups	N = 1 interview	N = 1 interview		N = 1 interview	N = 1 interview	N = 1 interview

3.3.4 Interview schedule for focus groups and one-one interviews

The same interview guide was created for both the one-to-one interviews and the focus groups (see Appendix 1) which were shaped by the literature review and research questions. Feedback was sought from the supervisory team and adjustments were made to the schedule. The questions for the teacher/ parent focus groups were formulated around the following topics:

1. Resilience; defining it and the relevance of education
2. Adversity; understanding the current issues faced by children including mental health problems
3. School based interventions; positive and negative positions
4. Exercise; views about the role of exercise within education/family life and the impacts this can have on the child
5. Nature; views about exposure to nature and the impacts this can have on the child/family
6. GE; views about movement in nature and the impact this can have on the child
7. GE as a school-based intervention; feasibility, appropriateness, potential content, positive and negative positions

The questions for the child topics were based on the following:

1. *What are emotions and feelings?
2. Resilience; what is their experience of difficulties and how have they managed these?
3. School life; what are their experiences of facing challenges at school?
4. Indoor exercise; what are their experiences of indoor exercise and what are the impacts of this?
5. Nature; what are their experiences of nature and what are the impacts of this?

6. Movement in nature; what are their experiences of this and what are the impacts?
7. Indoor exercise versus GE; what are their views about this, and which would they prefer to experience in school and in what ways?

   *As explained in the focus group section, this topic was later used for the sole purpose of rapport building.

As data collection progressed, I recognised that more emphasis needed to be placed on discussing experiences within nature, as the focus was predominantly on a discussion on resilience with the parent/teacher groups. The questions for teacher focus groups/interviews needed refinement, to allow for focus on the delivery of GE provisions. The following questions were added to the interview schedule:

1. What was your goal for this GE?
2. How do you feel about the delivery of your GE programme?
3. What has this experience made you think about the use of GE in schools?
4. What do you think the benefits are of using GE with children overall, and in relation to mental health?
5. Were there any barriers to the GE provision?

3.3.5 Observations and fieldnotes

The GE provisions were observed using participant observation, which is defined as *"the process of entering a group of people with a shared identity to gain an understanding of the community"* (The SAGE Encyclopaedia of Communication Research Methods 2017). In addition, this involved overt observations as all teachers/facilitators and children were aware that I was conducting observations. During all Forest School settings, I sat as part of the group and joined in with some of

the activities. Field notes were sometimes taken throughout the observation period, although, to fully immerse in the environment, at times, the researcher put the notebook down to participate. On these occasions, a decision was made to reconstruct the field notes soon after the session had completed. I was observing children, who, by their very nature, are very inquisitive – they asked me who I was and why I was there. They also interacted with me within the context of the sessions, for example, bringing me bugs they had found, or asking me to watch how high they could climb. I also conversed with the programme leaders throughout, informally asking them for their views on the different activities which were taking place. The notes which were taken recorded details about the content and delivery of the GE provision, who was present in the situation, and how participants and the teachers were responding to the activity. The notes also captured my introspective process and any thoughts that I had towards my experiences as a participant observer within the group. Whilst my observations were unstructured, in the sense that no behaviour checklist was used, much of the data I recorded in the field notes were behaviours of the children/ staff that were relevant to the specific research objectives of the thesis, and/or reflections I had following these observations, that related to the research objectives. For example, on one occasion I noted that one member of staff was repeatedly telling a child to 'be careful' when they were climbing tree during Forest School. In this instance I noted down the actual behaviour of what was happening, and my reflection that this approach was out of scope with the ethos of the Forest School; rather it was more in line with the health and safety driven context of the education system.

3.3.6 Data collection at the Ethnographic School sites

School A

Six focus groups with students were carried out, across all Year groups: one focus group with teaching staff, one focus group with parents and one interview with the facilitator of the outdoor running lunchtime club 'Junior Joggers' for children in Year 1 and Year 2. A morning 'Junior Joggers' club was also observed once for Children in Year 3 – Year 6. The Junior Joggers running club was observed over a 2-month period. During this process, field notes and reflective commentary were recorded.

School B

Three students, from Year 5 and 6, were observed across the 6-week Forest School programme. The researcher acted as a member of the group within the 'fire circle' which took place on the school grounds. The researcher observed the children walking around the school field and using tools. This final session took place out of school in a national park, where the researcher participated fully in the session with the children. The students walked the whole way around the park, built a rope swing, climbed trees, and enjoyed a hot chocolate in the forest. Field notes were taken, and one focus group was held with the students. An interview was also held with the lead Forest School Practitioner in a classroom at the school.

School C

One teacher focus group and one parent focus group were carried out. Field work observations were conducted on two residential activities. One field trip involved a one-day observation of students at coastal adventure centre. Children were observed across a range of activities, including a visit to the beach to learn about the coastline, a walk through a muddy forest, a sea/pond dipping experience, and a lesson where the

children learned about the items they had found during the sea/pond dipping experience. The researcher went on a walk with the children through a muddy wood, which led to the beach where they were learning about cliffs. The researcher also accompanied the children on a sea dipping experience where they aimed to find as many creatures as they could in different samples of the water. This involved the children walking along the sea front and walking into the water, lifting rocks, and climbing over uneven terrain. Throughout this observation, the researcher conversed with the teachers and the children. The children and staff were not interviewed as part of this process. Another field trip involved a one-day observation of students at 'Green Park', an outdoor adventure centre. Students were observed during 'challenge by choice' activities which involved the use of climbing ropes and trees. Students were also observed playing freely in nature during their relaxation time. Field notes were taken throughout these observations, and I conversed informally with the teachers leading the trip, during a class picnic, to find out their thoughts about the experience. Again, no interview took place following these observations. A gardening club, which took place across 2 sessions was also observed, involving Year 5/6 students. This involved observing students repotting plants and digging up their crop of onions which had been planted previously. Owing to maternity leave, and time delays with gaining consent, observations here were quite superficial, and it was not felt as though the researcher had really gained an insider perspective. However, the observations were used to inform some of the questions asked during the interview with the club leader, which did help to provide more of an understanding of this green provision.

School D

The school runs a Forest School for children in Reception and Year 2, in the Autumn term for 6 weeks, and then in the summer term for 6 weeks. Owing to the restricted

access to outside space on the school site, the school hired session time at a nature reserve, which was set up for a Forest School. The children walked to and from the site each week, which took about 20 minutes each way, increasing their access to green exercise. The teachers carried all the equipment needed for the session each week. Four out of the six sessions of the Reception class were observed, and the researcher played an active role in the sessions. The researcher had consent to take formal observation notes on 4 of the children, who were also interviewed as part of a focus group. The sessions all started around the fire circle. A loose activity was planned and explained to the children at the start of the session. For example, in one session children were able to make clay rubbings of leaves. However, children were free to explore the area, using the equipment that the teachers had brought with them – bug collectors, sieves for example – or they could choose to play freely in nature with no equipment.

School E

Year 2 students were observed during gardening club, across 3 lunch time sessions. There was no allotment space for the club, rather, the children plant seeds and flowers in pots and trays, and these were then left outside on a patioed area. The practitioner had pre-planned the activity for the children, and there was an end goal for the session. There was quite a lot of 'free flow', with children joining the session throughout, and leaving once they had completed their tasks. Tasks were mainly around watering the seeds, working together to fill the watering cans with water, and carrying them around the plants. This was considered a more 'light touch' ethnography, as owing to maternity leave, the researcher was unable to continue collecting data, and so it was not felt as though they had really gained much of an insider perspective, especially as a scheduled interview with the club leader had to be cancelled.

3.4 Ethical considerations

Ethical approval was obtained from the Faculty of Science and Technology Research Ethics Committee at Westminster University (approved 16th December 2016 ETH1617-0190). For all schools, permission was first granted by the Headteacher who then distributed the information sheets and consent forms electronically to all parents. The study was advertised internally to teaching staff. Consent was sought directly from the individuals from the sub population. All material concerning ethics can be seen an Appendix 2.

For the child focus groups, additional ethical considerations needed to be addressed. A teacher who was 'working in the background' was present in every focus group. A teacher was present to provide assurance to the children so that they felt more comfortable in the setting, and to meet safeguarding requirements. Children were also given red, yellow, and amber cards which they could use as visual aids to help them express their opinions in the focus group. For example, one question was "How do you feel about exercise in nature", and children were asked to select a card which reflected their opinions, as an ice breaker to create a more advanced discussion of this topic.

3.5 ***The role of the researcher***

Qualitative research values the researcher's personal subjectivity and partiality within the data collection and analysis process. (Tolich and Davidson 2003). Matreud (2001) states that unhelpful subjectivity occurs in the research process when the effect of the researcher on the research is ignored. Through the entire process of the research, the role of the researcher should be examined, to show a commitment to reflexivity.

Referring to this as a ‘ researcher’s backpack’ (Matreud 2001, pg. 2), the researcher’s position in the research necessarily influences every aspect of the approach adopted, from the design, the research purpose, to the sample chosen, interpretations and the framing of findings, and conclusions drawn. To increase transparency, it is therefore necessary to be reflexive, by identifying the preconceptions and positions held by the myself which shape the context of the knowledge construction throughout the whole research process. These include previous experiences, motivations for what should be explored, and pre-study beliefs about how things should be explored, including existing hypotheses the researcher may have already formulated in relation to the theoretical foundation for the study.

In relation to previous experiences, I was a teacher in the Secondary School Sector for 10 years prior to commencing my PhD. Therefore, I came to this project with my own insider knowledge, including experiences of – and feelings about - the forces operating within the education system. My own experience was that of dissatisfaction with the education system as a whole, which I view as failing the young people of today due to an emphasis on accountability in terms of academic outputs and league table, rather than also emphasising the nurturing of the child. Furthermore, as part of my role within the school, I was previously responsible for developing emotional resilience programmes, and working in partnership with several other local schools. In my experience, the teaching community did not always receive such programmes well, due to the difficulties in embedding emotion-based content into a classroom context. For example, in my experience many staff felt frustrated they teaching time was given to this area of focus rather than academic subjects. Teachers would roll their eyes when asked if they would be in the programme, and it appeared to have been viewed as a box ticking exercise with little value. Older students used the sessions as a ‘break’ and did not behave as

well in these sessions, making behaviour management far more of an issue than I was used to. It was frustrating as it was clear to me that this provision was clearly needed, but students may not have had the maturity or inclination to want to talk about personal issues in front of others. In short, the classroom-based resilience programmes I tried to put in place failed. I revisited this with my new insights in 2023, where I helped to design another resilience programme in the classroom for Year 11 students. Despite my attempts to provide training for senior leaders implementing the lessons on the theoretical underpinnings of resilience and the purpose of each session, these were not well attended. In addition, staff would simply grab the tools about 10 minutes before the lesson was due to start, skimming over the plan before delivering it, or changing it to suit their needs. This served to reaffirm my initial experiences from 2015/6 that classroom-based interventions for children and young people are unlikely to work well. That said, this insight can also be seen as a positive, as I believe I was able to 'dig down' into some of the deeper contextual issues surrounding the experience of running GE interventions during both the interviews and analysis , as I knew 'what to look for' in terms of questioning and I may have been more equipped to draw out my subtle contextual insights from the transcripts as I could empathise. These experiences helped to inform my outlooks about the use of classroom-based resilience programmes and indeed my motivations for pursuing this field of research, to create an intervention which could take place out of the classroom, and involve minimal planning for the teaching staff I have lived experience of working in an 'accountability culture' in education, which had increased over the past 10 years. I observed government changes contribute to an apparently difficult situation, making it difficult for teachers to do their job to the best of their ability. As a teacher I felt my well-being was increasingly compromised, with a lack of support from senior leadership to deal with the

complexity of demands brought about by an increase in student mental health problems. At the same time, at the start of this thesis I had two young children who were attending Primary School, and so I had seen first-hand how the opportunities for nature exposure decline after Pre-School and Reception class, where the focus then becomes on preparing for assessments in Mathematics and Literacy. These experiences shaped my interests and motivations to complete this study wanting to 'give voice' to what I believe to be the marginalised voice of the teacher and student in respect to how mental health is tackled within the education system.

In 2018, I took a one-year maternity leave, which was extended to a further break from my study period due to my general well-being during the COVID-19 pandemic. Since my return to study, I took on a part time role as a Psychology teacher at a Secondary School. In my previous role I was Head of Department, and so it is interesting to return to teaching in a role where I am not in such a position of accountability; for example, it is not my responsibility to defend the attainment of the students. However, I have been alarmed to find that the mental health of students not only appears to have become more commonly compromised, but the level of support available appears to have reduced. I have also found as a parent, that I do not feel that the school has been able to locate the resources needed to support the mental well-being of my children. My eldest daughter has suffered with anxiety issues, and my middle daughter exhibits ADHD and autism spectrum disorder tendencies. Not only does this make me an advocate for highlighting the needs to support the mental health of children, my frustrations at the lack of support offered to the child in school and the parent outside of school, could mean that I had a narrative I wanted to push forward from my data. That is, schools are failing to support the mental health of children. To maintain

transparency, I reflected on my overall negative evaluation about the education system before I began my analysis, and I made a point of developing themes to highlight the positive aspects of education, and to elaborate contradictory views to my own. An iterative process was used whereby I worked with the supervisory team to develop the analysis in the thesis and reflect on my positionality. I believe that this 'insight' has added to the richness of the research. It was an advantage in the shaping of the topic guide, and the ability to enhance the exploration of contextual issues during the data collection and analytical processes.

I have followed up responses given during interviews and focus groups using my experience as a teacher, to draw out the contextual influences that may shape the staff's ability to provide GE provisions. At times I did feel as though I may have been leading the questioning; for example, following up on conversations that were in line with my own experiences, as opposed to purposefully trying to pull out the experiences of teachers whose opinions differed from my own. Additionally, I strongly identified with teachers as 'peers' as opposed to research participants due to a shared 'comradery'. There is an unspoken 'bond' between those who have been in the teaching profession; it is a uniqueand incredibly challenging yet rewarding environment. Once you have been a teacher you almost become 'part' of an extended community – everyone feels as though they have been in the 'trenches' together. I left some interviews feeling emotionally drained, as I empathised with concerns about the accountability culture and conflict with wanting to provide real pastoral care for students. This was the original reason I left the profession; I wanted to provide care for my students first and foremost, but felt the agenda was to push attainment over well-being. To maintain a level of transparency about this, transcripts were carefully listened to, and references to 'shared experiences' between myself and the teachers

were noted. It was difficult at times to draw distinctions between my lived experience and that of my participants. In these moments, I used the support of my supervisory team who encouraged me to look for opportunities to use polarisation in my analysis, that is, to actively search for extracts which told the opposite story to my narrative.

Further to this, I was also impacted by the parent focus groups, as I felt myself 'drawn in' to the conversation, almost as a parent participant. Where discussions were around topics such as academic pressure, and support from schools, I found it harder to play the role of the outside interviewer here, as I related to the opinions of the parent participants. Additionally, I regularly attend Forest School sessions with my son - at these sessions, I have been conscious of my own feelings of anxiety, as my son moved freely around the space, taking risks in nature. This tells me that I have some resistance to allowing my own children to play freely in nature, and that I am somewhat risk averse myself, despite knowing the benefits that this will bring to my children. During my analysis, I especially related to the 'getting dirty' theme, as it very much sat in line with the dissonance I feel in letting my own children run freely in nature, versus the need to want to control the risk for them. This is something I still battle with today, although the findings from my thesis are challenging me to move out of my own comfort zone.

Other reflections I have are also about the methods used for example, as my thesis objectives shifted after some of the data had already collected, I felt I missed the chance to draw out richer data from the children. For example, I could have used photovoice (as previously discussed) and I could have drawn deeper on my teaching

experience to create more natural focus group environments, such as playing a game like Jenga with the children whilst they spoke about their experiences of GE.

3.6 Data Analysis

3.6.1 Theoretical Framework

Whilst others argue that early reading can lead to an analytical bias when it comes to engaging with the data, I accept the position of Tuckett (2005), who suggests that engagement with the literature before analysis can enhance the researcher's position in terms of being open to more subtle features of the data, as there is always some kind of theoretical approach to analysis, whether acknowledged or not. To develop a framework that conceptualises change through which GE may enhance resilience, and the influence of context on this, sensitivity within the analysis was shown to Masten's Adaptive Systems Theory (Masten 2001) (outlined in Chapter 1). This theory was specifically created to understand childhood resilience. Additionally, sensitivity was also shown Bronfenbrenner Ecological Model (1979) which conceptualises the systems through which childhood is experienced.

3.6.2 The analysis of emergent themes

Thematic analysis (TA) is defined as " *a method of systematically identifying, organising and offering insight into, patterns of meaning (themes) across a dataset"* (Braun and Clarke 2012, pg. 3.) It offers the benefit of, providing a flexible research tool which can provide an account of data that is both rich and complex (Braun and Clarke 2006). TA was selected for this study and was combined with a constant comparison approach to analysis. In my approach, the process involved generating

initial themes which were then constantly compared throughout the entire data corpus. The constant comparison approach was originally developed by Glaser and Straus (1967), as part of their grounded theory approach. Here the emphasis is on systematically organise the raw data through shared attributes, to create groups which create a theory from the bottom-up. However, constant comparison has now been acknowledged as useful across all qualitative methods of analysis t require a continual process of contrasting and comparison (SAGE 2015). Three steps are suggested when carrying out constant comparison analysis in TA, which are:

1. Making a list of similarities and differences across 2 cases
2. Continue to amend this as cases are added
3. Identify findings once all cases have been explored.

(SAGE 2015)

Within the TA process, a top down, deductive approach can be used, which is driven by the research questions, or a bottom up, inductive process, which is driven more by an exploration of the data itself. I showed sensitivity to Masten's adaptive systems and Bronfenbrenners's ecological model, and I had my research objectives in mind when I was analysing my data, in so much as I wanted to focus on the different ways GE was being used, the perceptions of stakeholders and any underlying mechanisms of change which I could use to conceptualise for theory of change model. This could be seen as deductive. However, I was inductive in my approach as I used line by line coding to also explore any initial codes and subsequent themes which 'emerged' from the data. An example of this is the 'childhood' theme, which emerged from a deep exploration of the data. Although, the different layers of Bronfenbrenner's ecological model were used with some initial coding when I considered the effect of

chronosystems for example, in relation to changing opinions of letting children outside. In addition, in the Being Green theme, many of Masten's ideas such as self-regulation and mastery are referred to, which also shows a deductive stance to this analysis.

Braun and Clarke (2006) define two further levels of analysis, semantic, which refers to the explicit meanings of what is being said, whereas latent, looks beyond what is being said; rather the focus is on understanding the underlying ideas/ideologies/concepts that may shape the semantic content. Owing to the contextualist positioning of this thesis, a mixture of semantic and latent analysis took place; commonly, semantic analysis tended to be used when coding data referring to the green exercise experience, whereas latent analysis was used when deconstructing the context of the education system and considering how this could relate to the green exercise experience and implications of this experience. This further highlights the flexible nature of thematic analysis afforded by its theoretical freedom, and the use of the pragmatic philosophy in epistemological positioning of this thesis.

Braun and Clarke (2006) identify 6 clear steps to conducting TA, which are as follows:

1. Familiarisation and immersion with the data: read through the transcripts to gain an understanding of the text.
2. Generating initial codes: initial names for key concepts that are arising from the text.
3. Searching for themes: an over-arching name which captures the 'pattern' which may join several codes together
4. Reviewing themes: a validation process with the supervisory team
5. Defining and naming themes: further clarification of the themes and refining in line with feedback

6. Producing the report: a full write up of the description of the themes including most relevant quotes

3.6.3 Familiarisation and Immersion

Braun and Clarke (2006) define immersion as "being familiar with the depth and breadth of the content". At this stage, I found it useful to re-listen to the audio of the transcripts as initial analytic interests and thoughts were being noted in the reflexive journal. Hard copies of the transcripts from School A, School B (excluding the green provision practitioner interview) and School C transcripts were read, and data extracts which were felt to be important were highlighted and initial notes were made on the transcript and in the reflexive journal. This process was iterative, and the reading of each transcript informed the initial notes made of the next transcript, and sometimes, transcripts already read. However, particular care was taken to look for contradictions within the data set, or those which departed from the 'dominant story line' (Braun and Clarke 2006). This was important to avoid making a superficial and largely surface level or descriptive analysis which missed the bigger picture.

3.6.4 Generation of initial codes

Using the concept of codes as "the most basic segment, or element of raw data that can be assessed in a meaningful way regarding the phenomenon" (Boyatzis, 1998:63) the research began coding the data. Although each line of each transcript was read, owing to the deductive nature of this research, line by line coding was not used. Instead, data was coded if it in some way related to the research objectives. At this stage the choice was made to code manually, using the highlight and comment tracker function of Microsoft Word. This was a purposeful decision as I felt more able to

immerse themselves in the data this way. When a segment of data was coded, it was copied and posted onto a separate Word document which had the code name. Again, this process was iterative, and the names of the codes evolved, changed, or, in some instances they were deleted as I moved through each transcript. Doing this manually meant that I was continually reviewing the collation of codes each time a new piece of data set was added; if it did not seem to 'fit' with the rest of the data within this code, revisions were made.

I analysed all groups in my data (children/teachers/GE practitioners and parents) using thematic analysis. When storing the transcripts into Nvivo 12, files were created for the different subgroups (children, parents, teachers/practitioners) to keep track of who the quotes belonged to. I combined all the analyses together to create overall themes for the entire data set.

In the first instance everything that appeared relative or interesting in relation to the research objectives was coded, and care was taken to maintain the context of the data by including surrounding data. Care was taken to look for contradictions within the data set, or those which departed from the 'dominant story line' (Braun and Clarke 2006). This was important to avoid making biased assumptions about the data, resulting in a narrow and largely surface level analysis. The process used both semantic and latent coding, and a sensitivity was shown to aforementioned conceptual frameworks. It is important to note however, that these frameworks did not dominate the analysis, and I took care to capture anything that was meaningful to the research objectives. As mentioned in the data management section, I decided to utilise NVIVO 12 as the data set increased. This also aided with the constant comparison process as I was able to make use of the applications which comped all transcripts on the same

code. This process repeated for every transcript, and, using the method of constant comparison, the codes from previous transcripts were reworked in relation to new codes emerging from subsequent analysis.

Stemming from this process, an initial coding framework of around 60 codes was sent to the supervisory team. It was noted that I was trying to create 'themes' rather than basic codes, and so the coding framework went back and forth between the team until codes were agreed. It is also important to note, that during this time, I took a 2-year break, owing to maternity leave and the Covid-19 pandemic. The analysis was picked up again after this extended break, and the final coding framework was approved by the supervisory team at 50 codes, as can be seen in Appendix (3)

3.6.5 Searching for themes; development, review, and definitions

At this point I took a wide lens approach which involved stepping back from the coding framework. I started to create memos and thematic maps to try and see the 'bigger picture' between my codes, in relation to my research objectives. I revisited all the codes, looking more deeply for a connections and contrasts, to uncover potential emergent themes. During this time, conceptual maps were made using NVivo, and data extracts for each code were re-read. Codes were essentially 'collapsed' and grouped together where they turned out to be the same theme. These were shared with the supervisory team in a meeting, to validate the themes. Writing up the analysis also formed a large part of the final process for clarifying the themes. Initial themes were refined, and defined more clearly, with supportive data extracts. Feedback from the supervisory team noted that I was creating too many 'sub' themes. This was amended, and from the initial coding framework, 3 main themes, and 8 subthemes emerged,

which are briefly outlined below. Each of these are explored, in depth, in the results chapters which follow.

1. Childhood: how is modern childhood constructed? (the forgotten child versus letting go, being perfect.
2. Being Green – how is the green exercise experience constructed for the child?
3. Going Green – factors influencing the embedment of green provisions in the school setting.

CHAPTER 4

Childhood

Perspectives are drawn from the practices of teaching and support staff, as well as narratives from children and parents. Additionally, field notes were taken during observations of green provisions across 4 Primary School settings. From this, three main themes emerged from the analysis which are reported across 3 chapters, as follows:

Chapter 4: Childhood: how is modern childhood constructed? (Childhood; Digital Worlds; parenting and the Education System)

Chapter 5: Being Green – how is the green exercise experience constructed for the child? (Freedom, Connection)

Chapter 6: Going Green – factors influencing the embedding of green provisions in the school setting (Getting dirty, *"It's just logistics really",* Deep versus Surface level embedment)

The theme of childhood introduces the contextual influences which serve to shape the experience of childhood, with wider implications for the experience of green exercise. Three subthemes emerged from the analysis:

1. Digital Worlds
2. Parenting
3. The Education System

Each subtheme will be discussed in turn, leading to a fuller analysis of how these subthemes may interact with each other to create the experience of 'Childhood'. In Chapter 7, final consideration will be given to how the construction of Childhood may interact with the experience of both Being Green and Going Green, providing a rich contextual understanding of the overall experience of green exercise in UK primary schools.

4.1 Digital Worlds

This subtheme refers to the impact of technology on childhood. Throughout almost every interview, technology was referred to as a major catalyst for shaping how children experience childhood, with implications for green exercise. Technology was mentioned in interviews including 'gaming' sites as well as social media, accessed by devices such as iPads, computers, or mobile phones. The use of technology was discussed in relation to the children themselves, their peers, and the adults in their lives. The subtheme of 'Digital Worlds' is broken down into 3 further sub themes which are 'Disconnected families', 'Hidden worlds' and 'The digital footprint'.

4.1.1 Disconnected families

Many adult interviewees commented on how childhood was changing, due to the increase in technology, with one Headteacher referring to "*the iPad generation".* The increasing amount of access young children have to technology was perceived as altering their life experiences in a different direction to previous generations:

"Children have less experience of certain things because technology plays a big part in their home lives ……. And they have, you know, a lot of our children, we've seen, are exceeding in technology because they have TV, and they have iPads, and they just play indoors…

(Teacher 2 interview School D)

At the same time, one aspect of lived experience which was viewed as lessening in quality concerned the mode of interaction within the family. Technology was viewed by many as getting in the way of communication between families:

"I hate technology, I think it's the worst thing that could have ever happened because no one talks anymore. I don't actually spend time playing with my children or kicking a football around as they would rather be in their room or on Twitter, iPads or listening to music or even flying a drone! It's gone outside, technology has gone outside – what about flying a kite!"

(Parent focus group School A)

Adults painted a picture of family life which was disconnected. The predominant perception of parents was that children prefer to engage with technology than with their family, making it hard for parents to get 'airtime' with their own children – *"we can't*

have a conversation, in fact it's better to talk to him while he's on it… you get a better conversation…" (Parent focus group School A). When some families tried to put a time restriction on the use of technology, so that they could make time to be together, their children could become angry, rather than engage with their families:

"…so basically, he would sit with us, and he'd be sat there huffing and puffing and you just know he doesn't want to spend time with you, we can't sit down and spend time together as a family, cos it's just not what he wants to do."

(Parent Focus Group School A)

The narrative here is one of frustration from the parents, who appear to crave real-life connections with their child. On the other hand, in an interview with a Headteacher, the disconnection within families was seen as parent modelled. They spoke of witnessing parents each week, watching their devices as opposed to their child's dance practice:

"But now it's the iPad generation where I, we have a, a dance academy here. They run after school hours several nights a week. Parents come and watch with their children. You come and sit while the child's having the lesson but before the lesson I often go there, Mum and Dad's on the phone, the child's on the iPad, they're not talking to each other, you know."

(Teacher 1 interview Additional School 6)

Other practitioners echoed these views, citing many experiences of children being ignored by their parents, who appeared busy on their phones and did not notice that their children were trying to communicate with them – *"…or they'll walk with the*

pushchair because it's easier, so they can still text while they're walking." (Teacher interview Additional School 2).

Aside from modelling device usage themselves, it was suggested that another reason children were so connected to their devices was to make life easier for the parent – *"and a lot of parents use it to keep them quiet, and they can do that, they are out of my hair, out of my way, and they leave them to it."*(Teacher interview additional school 1). Some teachers believed devices were being used to 'babysit' the children, in place of meaningful connections taking place between the parent and child, and outside play:

"I think with certain parents it's a lack of effort and I mean that in the nicest way possible, but I know there's a lot of my children that instead of going outside and playing, and they want to do that because they want to do that at school, and they want to go and do their mile and everything. But when you hear about them in the evening, xxxx's playing on the Xbox or you hear about their weekend, no we stayed in, and we watched TV, or we did this"

(Teacher Focus Group School C)

It is interesting to note that in this extract, the child is not seen as driving the need to be on their device, as the teacher in this example highlighted how - at school, the child does indeed want to play. However the parent is seen as shutting down this opportunity to connect. Although it may be the case that teachers have always been saying this, many teacher interviewees believed that parenting had changed for the worse – *"our approaches in parenting, I think, has changed --Quite dramatically as well."* (Teacher interview School D). However, one participant focused on the lack of support that parents can have for parenting:

"I think it's for me I personally feel, erm, that there has been a massive shift change in society due, and due to the fact of lots of social mobility, people going away to university maybe when there wasn't, because there was a massive push several years ago …… Wasn't there, to get everybody away to university. Everybody moved away and kind of people haven't gone back to living in the villages or the towns where their family live so parents are setting up in areas where they haven't got a social network."

(Teacher 1 interview additional school 6)

As well as this, it was noted by others that there has been a shift in the home/work family structure, where it was now common for both parents to be working – "*Um, because, because lives are busier, and um, parents, like in the olden days mum was there, she didn't have to work, but now mums and dads do have to work"* (Teacher focus group School C). Coupled with a potential lack of an extended support network, it may be easier for the parent to allow the child to go on their device, or, to escape from their own parental demands by using their own devices:

"Yeah working parents especially, I think, would find it harder. Come home after a long day, you're tired already. The kid wants to do something and you're just like, oh I'm too tired can you just sit and wait, they're probably end of their tether, end of patience, and want it easier, um, but it, it, that isn't for every parent, I don't think, it's, it's the same for every parent…"

(Teacher 2 interview Additional School 6)

Parents were viewed as being under pressure to project a picture-perfect family. A large proportion of parents' lives are experienced through social media now, and parents were perceived as feeling under pressure to compete with other families. It was thought that parents could become so consumed with creating the illusion of the perfect family life on social media, that it interfered with in-person family interactions:

"And, and there's um, you know, I think people have an expectation to have an amazing social life as well, and all this. You know, you see it on the media, and this is how you should live your life, and I do feel parents feel a pressure. And I think sometimes the children get, even though we'd hate to think that, they get a little bit side-lined. And it's so easy to just pick up your phone…"

(Teacher 1 interview School D)

A final reason suggested for supposed disconnection between families in favour of connection to their digital worlds was a generational shift in attitudes towards accessing the outdoors:

"Erm, we're living in a generation now I think where families, erm, are not, are not outdoorsy…there's almost I think, erm, a gap, a generation gap, perhaps a whole generational gap in knowledge about outdoor living and, um, you know, children don't know what common plants are, children don't know what common, you know, animals are. Erm, they just don't go outside because, you know, they're at home, they're wrapped up a bit too much, they're on devices at home."

(Teacher 1 interview additional school 6)

Some practitioners held the belief that some parents equate the outside world with

dangers:

"Parents worry about the safety of their children now, not just because of road safety although there are more cars around now, but if you look at the number of children who have accidents, actually it hasn't changed, it's parent perceptions of things like abductions and parents cite that as one of the main reasons why they don't let children out of their site anymore, what if somebody grabbed my child?"

(Teacher Interview School B)

Further to this, social media was also mentioned frequently as a source of this misconception of danger:

".think a lot of it is to do, I think a lot of it's in the media, so the parents are scared, understandably. But um, I, I didn't give my son, who's 24 now, the freedoms that I had when I was little, because you know, there's like, and the media's everywhere now. You just, you've got Facebook, and it's not just the news in the newspapers."

(Teacher 1 interview school D)

In terms of the potential for green exercise, changing attitudes to the value of nature, an increased perception of danger, and concerns of being judged as a bad parent for allowing your child to be outdoors alone, were thought to be connected to children staying indoors and away from outdoor activities. Parents may be too exhausted to interact with their child inside the house due to a lack of extended support networks and work demands. This could lead to a disconnected family, as the child is allowed to

access their device to allow parents a quieter life. Additionally, the parent may escape to their own device, which also models this kind of behaviour to children.

4.1.2 Hidden Worlds

Several narratives focused on the notion of children existing in digital spaces that were hard for parents to access. Many parents felt as though their child's relationship with technology created this hidden world. *"It's so complex, we are so locked up in digital social worlds that they are caught up in that we have no access to, they have their own digital networks"* (Parent focus group School A). In this world, the parent had little access , including to the relationships they may be building with others – *"…as parents it's so difficult to keep up with the technologies and how much time they are spending by themselves in the room alone with the tablets – they have to learn how to protect themselves" (*Parent focus group School A*)*. Another concern about this hidden world, was that it seemed inescapable. In previous generations, if a child was experiencing difficulties with friends, they could come home for solace. Parents and teachers expressed uneasiness about the pressure children were under, including peer pressure to always be 'online'through a 'fear of missing out' on online life:

"T1: Um, if I ever had a, a problem with a child at school, I used to avoid them at school, job done, whereas, you know, at home, when you have got it on the internet as well. I know you can block but not every child does that ….

T2: Because then they have got the fear of missing out thing…"

(Teacher focus group School C)

Due to anxiety about further exclusion, a child may still feel impelled to access online platforms, even if there are social issues with other users. Online interactions often 'seeped' into real world discussions with their peers;if the child is unable to access the technology platform being used, the child is excluded, in both the online world and the real world. Peer pressure to have the latest technology, or to be able to go onto certain social media platforms, was also cited as another negative effect of technology. Parents could be under pressure to provide the latest iPhone, as they didn't want their children to feel left out:

"I think it's the absolute thing. My son who is like 12, he wants the iPhone the latest iPhone-as everyone else has one and then there is this feeling that you don't want your child to be the outcast."

*(*Parent Focus Group School C*)*

Some parents on the other hand believed the use of technology was positive for their child, as it allowed them to access social worlds, that, in the real world, they were excluded from. Or it served to strengthen existing real-world friendships - *"...he struggles socially anyway, but because of technology, it's one of his things he enjoys, his x box..."* (Parent focus group School A). In this sense, use of technology could increase real world connections. This could further add to the state of conflict for a parent about technology, as they do not want to deny their child access to a world where they may experience a greater sense of inclusion.

Parents could lack confidence in their own abilities to manage the technology themselves. Some parents stated that they would like more support from the school with this, however, others stated that they managed their child's hidden world via

restriction – *"I won't let mine online with things like that, he is an easy target, I would never put him outside in an online world which he knows nothing about"* (Parent Focus Group School A). However, in some instances, parents felt more able to create clear boundaries with their child, so they could access their hidden world in a managed way:

"...I do think it needs to be managed at a very early age and I think you need to set out your stall at a very young age, these are the rules, I think once it has been allowed to go it is very difficult to reign it back in. In my own family, I ban technology in the week"

(Parent Focus Group School A)

Technology for some was considered a 'necessary evil'. Although these parents were not entirely pleased that their child's real world was often merged with their online worlds, they felt it was their role to teach their child safe ways to manage their use of technology - *"... sometimes I walk into his room and he'll be watching something, like someone with a nerf gun on You Tube, and I'll be like 'okay X I don't think that's good' and we'll talk about whether that's good or not...."* (Parent Focus Group School A).

It was pointed out that technology has long been present in some form in childhood: – *" how different is it from us talking to our friends when we younger on the phone, it's not that far removed* (Parent Focus Group School A*).* On the one hand, there appears to be familiarity with the concept of communicating with friends, outside of the direct supervision of parents, in this case, using the phone. However, the parent in this account depicts the use of online technology leading to bullying, which is particularly

difficult for the parent to tackle – *"but it's things like the bullying that there is no escape from – that's where I have an issue with it, it's just a bit of a beast. I don't think anyone really knows how to tackle it..."* (Parent Focus Group School A*)*. This highlights concerns of not being able to protect the child because the parent is not part of the digital world -*"the danger has infiltrated into you household"* (Parent Focus Group School A).

There were concerns about the age of children accessing online platforms, and their ability to properly manage risks there. It was pointed out that children may be vulnerable on these platforms, as many are trustingand may not grasp the concept that they are often conversing with strangers online, who might pose a danger. When it comes to making their own risk assessment for the child, this could create another layer of complexity for the parent. One parent shared their approach to tackling such conversations with their child:

"...but then I said to mine it can be very tricky as they might have a photograph up of someone your age, an 8 year old boy but actually they are like 50, so it's very difficult, we have done it in a gentle way, often I have the radio on and there's stories and we talk about, I don't kind of build it up to the 'big talk', we just talk about it generally in a general conversation and I just throw it out to them and it's a learning thing which evolves all the time……"

(Parent Focus Group School A).

Here, subtlety is used by the parents to shape their child's hidden worlds, yet highlighting the anxiety felt by parents about digital worlds, and the limits of their

capacity to intervene.

4.1.3 Digital Footprint

In this analysis, a 'digital footprint' refers to the knock-on effect of technology use. This impact of digital worlds was, mostly but not always, constructed negatively. One parent did comment that technology could increase communication with grandparents, but aside from this, all other accounts painted a more foreboding picture of the digital world.

A widely held belief was that children were so caught up in their digital worlds, they "*just don't know how to play"* (Teacher 1 interview Additional school 4). A cycle then occurs, where the children continue to use technology instead of seeking out play experiences outside of their digital worlds, lessening opportunities for physically self-directed play skills to occur, and increasing the reliance on their digital worlds – *"Erm, they just don't go outside because, you know, they're at home, they're wrapped up a bit too much, they're on devices at home"* (Teacher 1 interview Additional school 4). The same teacher noted how the children she worked with viewed school holidays as a chance to increase their exposure to technology, rather than create physical memories that exist outside of their digital worlds:

"I feel that a lot of children they are excited cos it's coming up to the holidays and they are going to be able to sit down and play on their computers or their laptops or their iPads or whatever… they are having such a narrow experience of life".

(Teacher interview additional school 1)

This seems to create a paradoxical construction of childhood – as access to an advanced technological world increases, the richness of experiences in the real-world decreases. Teachers commented on how children are thought to be more alone in their digital worlds – they are not necessarily playing alongside friends, and this was a cause for concern:

"Because of technology…it's also quite lonely, a lot of these things you are doing on your own, you are playing on your own, or when you're watching television, or a film or on the computer you are often on your own….

(Teacher focus group School A).

Because of reliance of their digital worlds, many teachers felt that the children were losing their social skills from a very young age, decreasing the chance for high quality communication with others in the real world:

"I mean they're very computer literate, but it's not a two-way process…..It's not, it's not that two way it doesn't, it's not a, a two-way process that, that, so they're not learning to listen and to have a response and things like that. And that's what talking is, it's learning to listen to people, to, to respond, to answer back, so the language is not getting there…"

(Teacher interview additional school 2)

Friendship problems in the real world, arising when interacting online, were causing increasing concern among teachers. Part of the issue here was that children were being threatened in the real world with exclusion from their digital world, e.g., – *"Are you*

*playing on this tonight? Oh well you can't play on this blah, blah, blah. I don't want you to play online with me and that sort of thing –" (*Teacher focus group school C). Children were having to navigate between two worlds, digital *and* real, and many found it difficult to understand that what gets said online, does have real world consequences – *"But I think that adds a lot of stress to children…I don't think children understand, no matter how many times we tell them, that what they say online or what they do online it's, it doesn't mean that they haven't said it –" (*Teacher focus group school C). As a result, more demands are placed on the teacher to deal with these issues spilling over into school – *"I mean every, every week I get something with Year 6s that's based with Instagram or just Snapchat." (*Teacher focus group school C).

One frustration expressed by teachers, was that they did not necessarily view the management of online interactions as their responsibility – especially when considering that many of these platforms are not meant to be accessed below the age of 14. Teachers felt that parents should be managing this at home – *"Yeah, I mean we make it very clear that it is illegal because they are not 14 but…at the end of the day it's their parents' responsibilities –" (*Teacher focus group school C). However, parental management in older children was often thought to involve checking whether the child seemed 'happy' when online as opposed to actually supporting the child to manage social relationships online, or putting age appropriate restrictions in place – *"After Key Stage 2 it's, the amount of children now that have access to it, even if their parents control, it's not really parental control it's just a parent knowing that they're happy, er, to go on there –" (*Teacher focus group school C). Practitioners viewed internet safety as being complex for the child – *"Erm, and it's very difficult in a, in a world thinking about internet safety of actually keeping yourself safe and knowing*

what to do if you come across something you don't find appropriate." (Teacher 1 interview additional school 6*).*

Children were known to access platforms with very adult language, and in some cases, they were thought to be accessing inappropriate sites which would raise safeguarding issues – *"I have had Year 3 children who I can only say must have seen porn –"* (Teacher Focus group School C). However, technology was not viewed as the *driver* of children growing up too soon – rather it was considered that society had changed. As a consequence of this, children may be allowed to access more adult content than is age appropriate, as they were perceived by adults as being more mature than they were developmentally– (*F) "And I don't think that's anyone's fault necessarily, I just think the way society has changed over the years…(F) Yes, I do find some of the parents do share more with their children than they should do."* (Teacher Focus group School C).

Another digital footprint considered amongst some parents and practitioners concerned the cognitive side effects of technology, and the impact this can have on educational outcomes. One interviewee commented on the 'false progress' that technology usage created. She spoke of pre-school children being strong mathematically, due to accessing maths-based games on their devices. Thus, parents had the belief that their children were progressing very well developmentally. However, children were viewed by the practitioner as lacking in other skills, like social and emotional – "*So they're good, they can do the numbers, they know the letters. Mum's really proud because they do like all this, but they have no communication skills."* (Teacher interview additional school 1)

Another pre-school practitioner, with many years of experience, spoke of the difficulty she felt her education setting had in competing with technology:

"We've had children crying, and I've said to the parents, but why are they crying? Well, they don't want to come in. But why won't they come in? I said, well what are they doing before they come? Oh, they were on the, the PlayStation or they were on the, the tablets and that. I said, that's why, we can't compete with that."

(Teacher interview additional school 2)

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Instant reward and instant gratification were cited as one reason why technology was so appealing, especially to younger children. This was considered damaging for the children, as they weren't necessarily learning to wait, or experiencing disappointment when the anticipated outcome did not arise. Other teachers also commented on the ease of the digital world, where shortcuts could be taken, in place of actual problem solving. As well as this, being emerged in the digital world was viewed as coming at the expense of real-world experiences and the chance to encounter challenge. As a result of this children aren't engaging in free outside play as much, and this was viewed as *"really damaging"* (Teacher interview additional school 4). Problems with attention were also being experienced, which was viewed as linked to unregulated technology use:

"A lot of them do have attention problems and I think for some of them that is linked directly to electronic things, um, I'm thinking of one particular child who doesn't sleep well, and he has the television in the bedroom and the computer in the bedroom and everything, and he just does as he pleases"

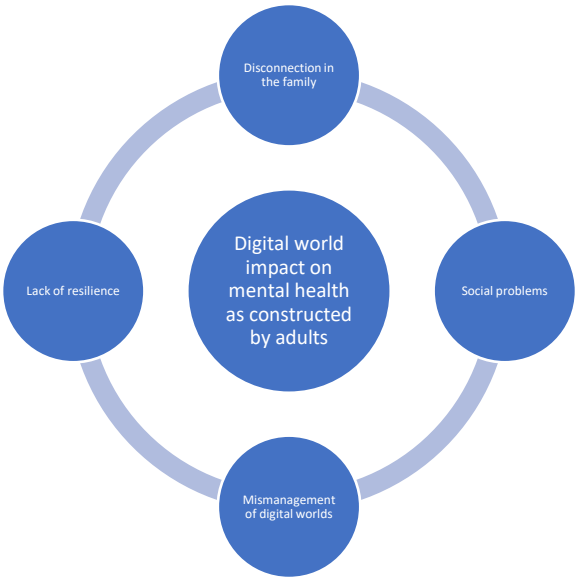
(Teacher interview additional school 1)

One reason why the digital worlds was considered so problematic concerned resilience. Children were perceived by teachers as being generally less resilient today, and technology was considered a contributing factor. Immersion in the digital world can mean less exposure to real world challenge through rich outdoor experiences. Consequently, there was a reduced need for the child to be resilient, culminating in less opportunity for these skills to be developed through free play, *"Because they get instant gratification, and that's about resilience that everything's not about instant gratification, you've got to learn, you've got to learn to be disappointed."* (Teacher interview additional school 2).

In addition, the issues of mental health and technology use were commonly raised by teachers, and this could be viewed as the main issue concerning the digital footprint, based on the cumulative risk factor of the points that have already raised. For example, disconnection within the family, loneliness, online bullying, peer pressure, a lack of social skills and an inability to manage complex online words (compounded by a lack of parental support in some instances) all link to poorer mental health. Additionally, some parents and practitioners spoke of the addictive nature of technology, where children are being increasingly drawn to their digital worlds – "*And I think, I think children are drawn to it. I found with mine the times when I have let them do it, they almost become a little bit addicted to it."* (Teacher interview additional school 1*)* This reliance on the digital world was seen as a risk factor for mental health problems, "*I think, how that must affect their mental health, you know, it fills me with horror!"* (Teacher interview additional school 1)

In terms of connection to the real world, including outdoor activity, increased time spent in digital worlds was thought to lead to disconnection within the family, loneliness, online bullying, peer pressure, a lack of social skills (including for managing complex online words), and less time for outdoor play. This is all compounded by a lack of parental access to online worlds, with parents fearing the consequences for child mental health. This is depicted in figure 3 below.

Figure 3 Risk factors associated with the digital world and mental health



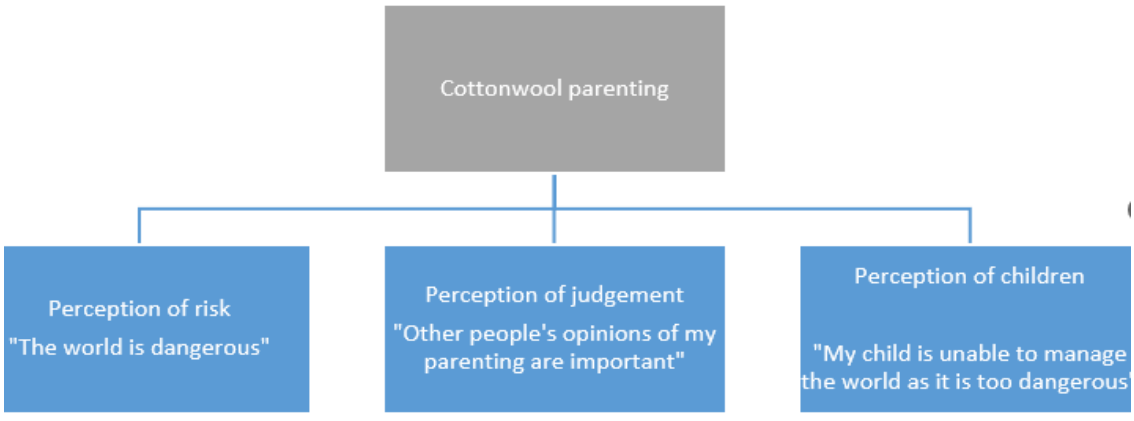
4.2 Parenting

Three types of parenting styles emerged from the data analysis; *cottonwool parenting*, *bounce back parenting*, and '*disconnected parents'*. This third construct is viewed not as a distinct parenting style, but rather a mediator which interacts with the two main parenting styles, creating a matrix of parenting styles.

4.2.1 *Cottonwool Parenting*

This parenting style, the most frequently cited style throughout all the narratives, is typified by a parent who is connected to their child, but risk averse. In my analysis three layers of perception appeared to play a role in this parenting style; (1) perception of risk (2) perception of judgment (3) perception of children. These are depicted in figure 4.

Figure 4. A depiction of cottonwool parenting



In the first instance, a common belief amongst these parents was that the threat of danger in the world is real, hence it is their job as a 'good' parent to protect their child

from threats by doing all that they can to shield them. Perceptions of risk are discussed across Chapters 5 and 6, particularly in relation to parental fears of their children 'Getting Dirty', which impacted their child's GE experience. My suggestion here is that, aside from dangers in nature, the worldview of the parent is one of unease. Parents may see their purpose as gatekeepers, who prepare their child for a dangerous world, by limiting access to it:

".. the research talks about how wrapped in cotton wool our children are now, and you know, the fact that thirty years ago when we were children we were allowed to play out on the streets and our parents wouldn't worry… Parents worry about the safety of their children now…."

(Teacher interview School B)

Many practitioners (taken here to mean educators and/or forest school leaders and/or green exercise activity leaders) spoke of an exaggerated parental perception of risk, which they contrasted with more laid-back perceptions of 70s and 80s parents. However, it was perceived that this current perception was distorted as the world is by no means any more dangerous than it has ever been. Media coverage, likely enhanced by access to social media, may have some part to play in this distortion:

"…it's parent perceptions of things…all the evidence shows there is no increase at all in the number who have been abducted or abused, in fact that's most likely to happen in their own home or the home of somebody they know, so all the research goes against their parent's beliefs, but because social media, the news that surrounds everybody, that makes the parent worry."

(Teacher focus group school C)

As a method of keeping the child safe in this seemingly dangerous world, the cottonwool parent can be viewed as 'micromanaging' their child, so that they rarely come face to face with a threatening situation. Part of this micromanagement process was considered as involving the removal of child decision making - parents would manage their child's worlds to ensure it was as 'safe' as possible - *"I think just that, it comes from that parental worry that "I must keep my child safe, and the way I keep them safe is by doing everything for them and controlling everything around them"* (Teacher interview School B). One child from School B who participated in a Forest School, and who showed notable discomfort with handling dirty objects at the start of the experience, reflected on how her mum's actions had made her feel this would be unsafe. The extract below shows an exchange between the myself and the child, after I asked them what could be improved about forest school:

"P1: Yeah! They need to bring some baby wipes out or something, so we don't get mucky!

I: What is it you don't like about being mucky?

P1: it's probably just my mum as she, cos I have two younger sibling she's always like, 'wash your hands' 'do this, do that', I don't know cos we have animals and stuff she's like saying that you have to do cleaning all the time, so it's probably cos of my mum.."

(CFG School B)

In terms of perception of judgement, micromanagement may reduce the risk of judgement for the parent. Several parents talked about how they wanted to be 'braver' with their children and knew from their own childhoods that it was important to *let go*. However, they were worried that they may be judged unfavourably by other parents and teachers - *"... I'm very much you have to learn through finding things out, but I would worry about people's perceptions of me, - 'what are you doing?"* (Teacher focus group School C). Some parents expressed anxiety of reaching out for support in case they were viewed as a 'bad parent', by agencies such as Social Services -*"... I mean my daughter had an itchy bottom and I worried about .... You know you worry about social services and that just ringing alarm bells..."* (Parent focus group School C).

There may be an element of so called "cancel culture" at play here too, with a societal shift towards criticising a parent for their decision making, rather than empathising with parent difficulties – *"- there's a huge backlash from society saying, "they brought it on themselves, they are bad parents" and that's what happens ..."* (Parent focus group School C). Some parents also expressed frustration about being viewed as a bad parent on social media, as they had witnessed accounts of this happening to other parents – *"... there's a constant, not a constant, but a worry with social media and there's a programme on tonight where this woman they had social services come round because she left the child alone in the car for 5 minutes..."* (Parent focus group School C). Perception of judgement may be a motivator for micromanagement – *"maybe it is that worry about being a 'good' parent"* (Teacher interview School B).

Risk-averse parenting has been identified by teachers who felt that parents were becoming increasingly involved in the management of their child's friendships:

"...I've got a lot more parents who are coming in now trying to sort out a friendship issue and I think that stems from wanting to be a good parent..." (Teacher focus group School C). Teachers also spoke of the parents' inability to 'let go' of the need to micromanage – *"You know what I mean, yeah, helicopter parenting, erm, where they have to kind of like be involved with everything, every aspect of, of the child's life, care, education, not letting go..."* (Teacher interview School D).

The final layer of cottonwool parenting which may contribute towards the need to micromanage the child, moves away from perceptions of risk and judgement to the parent's perception of the child themselves. The underlining message that seems to be coming from cottonwool parents is – 'the world is dangerous, and you are not able to cope with it, so I will manage this for you'. It was felt that children were viewed by cottonwool parents, as not being capable of, or responsible for, their own risk management.

In the case of special education needs children, some practitioners believed that parents seemed to underestimate what the child could achieve, especially in a Forest School setting:

"Yeah. I do, oh an, an interesting point for you actually is that we do have quite a lot of resistance from, generally from families with children with special educational needs who tend to be a bit more wrapped in cottonwool than maybe your average child –"

(Teacher interview additional school 6)

Be it a mainstream or SEN child, the cotton wool parent finds it very difficult to let go and allow their child to sit with struggle - *"But sometimes they're not allowed to*

struggle for long enough. They're not allowed to try for long enough –", viewed by many as a cultural shift in society – (Teacher focus group School C).

One teacher focus group discussed whether parents knew *how* to let their child sit with struggle. These parents can 'jump in' and 'save' children before they've had the chance to realise for themselves that they could manage the situation. This could be due to guilt on the part of the parent, who believes it is their role to protect their child from all risk. Therefore, if a risky situation occurs, this is the fault of the parent for failing to pre-empt this - *"I think the risk-taking element has certainly changed. I think parents are far more protective, well that's generalising but I feel like they are."* (Teacher focus group School C)

Taking charge of the child's inner world and ability to be autonomous was viewed as being problematic by practitioners across all interviews: children were being given a blueprint for life, which compromised recovery from adversity*, "they are like 'well I was always told to be really careful, and I'm not allowed to cross a road on my own, and now I'm about to do that'"* (Teacher focus group School C).

Having the freedom to make mistakes was viewed as crucial to childhood by these practitioners - one account in particular, from a nursery worker with over 25 years of experience stood out. She was concerned about the changes she had seen in child rearing practices*„ "But you've got to take the risk…and children are not being able to take risks now….. So, for God's sake, let your child just take risk, because they will keep themselves safe."* (Teacher interview additional school 2).

4.2.2 *Bounce-back parenting*

Some parents, (and those who advocated GE exposure with their children), believed that rather than removing exposure to risk, their role was to *prepare* their child for a challenging world. Here, risk was viewed as *necessary*. Consequently, I have coined the term 'bounce-back' parenting, as these parents promoted a kind of resilience in their children. Such parents were risk willing, and, like Cottonwool Parents, '*connected'* with their child through meaningful interaction.

Part of this 'bounce-back' strategy, was to use smaller risky situations, to almost inoculate their child against bigger risk situations –*"I've noticed with my own daughter who is 14, she has to get a bus on her own from school and so leading up to that [she would] walk to the shops on her own, or walk up the road on her own"* (Parent focus group school C). Rather than a 'risk avoidance' approach, 'risk management' was seen as important in helping the child to develop confidence in themselves. This same parent contrasted her style with that of a peer – *"whereas she has a friend that still, she's not allowed to get on the bus to walk to the local shops, she's not allowed to take any of those manged risks"* (Parent focus group School C).

It is noteworthy, that bounce-back parents were not trying to be preventative – that is – help the child avoid risk through managing situations carefully, themselves. They believed that navigating failure and mistakes were an important part of childhood:

" Well, you know and sometimes they have to find out, you know what it's like to fall over the scrap if they climb you, and I don't rush and say, " oh you can't do that" you know, they have to find out…they have to take risks".

(Parent focus group school C)

In one child focus group, it was granny that was modelling bounce-back parenting for the child, through allowing her to get involved in the garden and climb trees - *"Well my granny, umm, she has loads of plants, um and we normally weed and, um at my grans I climb a tree in the garden…"* (CFG School B)

The philosophy here was that *'Children are more careful than we give them credit for'*. They also were able to sit with the discomfort of this process, in the faith that they as parents had done enough to equip children with the necessary skills to manage risk:

"I was thinking with XX now, umm will I let him go off this Summer and meet his friends at the Rec or where ever and it's like oh my god now it's down to you to decide what's right and wrong or will that person sway you and I suppose I have to just go oh my god you know I hope I've given him the core, the resilience to…."

(Parent Focus Group School A)

These parents were viewed by practitioners as important role models for resilience, who were not afraid to show their children their own mistakes, despite the unease that may be felt when doing so:

"As a parent it's an uncomfortable experience for them but that's life and I think it harks back to talking about you know. Life in general, life is difficult. We might sugar coat it a bit, but life is difficult challenges, I'll often hark back to when I was at school and relate the story or particular challenge that the key message is there, but they see that you survived it. I think that's really important…"

(Teacher interview school C)

During one focus group with parents, a rather striking moment happened, when a participant told the group about a time, she had left her daughter behind at a theatre. She shared this with the group to highlight that no one is perfect, mistakes happen, and this does not make someone a bad parent. It was a powerful moment in the focus group; this parent had modelled bounce-back parenting for them, and it visibly shifted some tension that parents had around feeling like a 'bad parent':

"…when one of my daughters was five I left her at the theatre! (laughs nervously) …..but you know, you make mistakes don't you… these things happen I mean as it was they were very nice people, but I mean it could have all gone pear shaped…"

(Parent focus group School C)

To summarise, bounce back parents believe:

1. Connection with their child is necessary.
2. Teaching risk management, directly and indirectly through modelling is important.
3. Risk exposure is important and inevitable.
4. Children are capable and should be encouraged to manage appropriate risks for themselves.

To aid with the conceptualising of these two parenting styles, the table below clarifies the different perspectives of each style:

Table 6 Comparison of parenting styles

	Cottonwool Parent	Bounce Back Parents
Beliefs about connection	- Connection with the child is meaningful, but this can become 'micromanaged' by parent instead of a two-way process	- Connection with the child is meaningful
Perception of risk	- The world is dangerous, and it is my job to avoid exposure to them	- Risks are necessary and it is my job to inoculate
Perception of judgement	- I could be seen as a bad parent if I expose my child to risk	- Any concerns overridden by values (people may judge me BUT I know this is best for my child)
Perception of the child	- The child needs me to always manage their lives for them	- The parent should scaffold experiences to their child – expose them to risks which build confidence in their ow ability to handle challenge

4 .2.3 *Disconnected parents*

Disconnection in this chapter is considered a lack of meaningful communication between the adult and the child. It also refers to the parent (dis)connecting to the development needs of the child. Within disconnected parenting, two substyles emerged, *Time Poor Parents* and *Absent Parenting*. Time Poor parents are defined here as those who are less connected as they have limited time available to spend with their child; and are also risk averse. Absent parents are defined as those who are disconnected from their child as they may not value connection, so less emphasis is

placed on this as a priority in the household. In contrast, they are risk willing, as they hold an exaggerated perception of the child's ability to manage risk for themselves.

Motives for disconnection across these two styles will be discussed in relation to the impact of technology and shifting family dynamics. These styles can also be compared on perceptions of risk, perception of judgment and perception of the child. At the end of this section, table 6 summarises the construction of disconnection between the two parenting styles.

For some parents, there seems to be a lack of connection between the parent and child, with basic communication problems. Technology was seen as major reason for this, which has already been discussed at length in the 'Digital World's' section. For Time Poor parents, exhaustion was a major factor here – quite simply, parents are having to balance work with being a parent. This pressure can be overwhelming, and so some parents may simply 'disconnect' as a way of coping. Technology was used here as an example of allowing the parents a chance to manage their child for a 'quiet life'. However, in the case of absent parents, this pressure was also viewed as a reason why some parents also 'give in' to their child, for an easier life, rather than truly connecting with the child in that moment -*"a lot of parent use it to keep them quiet, and they can do that, they are out of my hair, out of my way, and they leave them to it."* (Teacher interview additional school 1).

In the case of Time Poor parents, a societal shift in family dynamics was viewed as a contributing factor to disconnection. One Headteacher noted of parents being time poor: *"I call them cash rich, time poor parents"* – (Teacher 1 interview additional

school 6). These parents often worked long hours to provide financial security for the child, but they weren't often able to be truly present for children. Previously, parents might have had a wide network of family support, which may have allowed the child to receive more time with adults. Changing family unit structures presents additional obstacles for support – one parent having to do most of the childcare can mean the parent has limited resources left in the tank to connect – "*And there's no… there's no support network sometimes for families"* (Teacher 1 interview additional school 6).

Some parents also discussed the demands of the education system taking up valuable time between the child and the parent – extra work for parents to do with their child at home to keep up with expected standards, often meant something just must give:

"But then I think parents are under so much pressure working, even if they're not working there's the homework… the reality is, "are parents going to be spending that time doing cooking with their children?" No – they are under that pressure to do it all too.."

(Parent focus group school A)

Others noted that the impact of disconnection through lack of time for the child, affected the educational experience within school - *"her behaviours got better since mum adapted her hours, so she does a lot of the collection now so she's appearing a bit more settled in the class, and she is getting more work done in the class now* (Teacher focus group school C). In juxtaposition, the absent parent did not appear to be overly concerned with keeping up with the pressures of parenting. They appeared to teachers to put less effort into their parenting, so disconnection here may be due to

a lack of value being placed on connection, rather than them being able to find the time.

Therefore, when contrasting the Time Poor parent and the Absent Parent, it may be that a key differences between the construction of disconnection between the two, is that Time Poor parents are 'willing but unable' whereas Absent Parents may be 'able to but unwilling'. Another key difference between the two disconnected parenting styles concerned their viewpoint on risk and judgement. Time poor parents appeared to also be risk averse, (in the same way that cottonwool parents are), viewing the world as dangerous and wanting to keep their chid safe. The previous quotes used to describe views of the world being dangerous and the perception of the child for Cottonwool Parenting, also apply to the Time Poor parent. However, the key difference is that the Time Poor parent does not have the actual time to protect their child from all the dangers –

"I don't know. I guess families are slightly different these days. Some families are, you know, the setup and dynamics of families are different. Erm, less, less parents, the parents having less time to take them outside and do things like that, activities."

(Teacher interview School E). Consequently, Time Poor parenting was often associated with feeling guilty, about not being the type of parent they wanted to be -*"I mean and it's just, it's a symptom of, I mean I work full time, I, we all feel guilty about not giving our children enough time, and we're all so busy, we're all so busy."* (Teacher interview additional school 3).

On the other hand, the Absent Parent appears to misjudge the appropriateness of this risk for the child, or it may not even cross their minds to consider this–here the Absent

Parent can also be seen as disconnected from the child's developmental needs. An example concerned early exposure to child inappropriate behaviour – such as porn – when they were at primary school. The extract below is taken from a teacher focus group transcript, where the group are discussing the issue of parents oversharing with their child:

"F: "Yes, I do find some of the parents do share more with their children than they should do.

F And so children are learning things at a lot younger age that you wouldn't really want them to know."

F And they're hearing a lot of things that actually just shouldn't be shared with them, you know.

F And I think they're exposed to a lot more than they should be, you know.

F Yeah, I totally agree with that. The, the, the language that I'm hearing --

F You know used by children has changed considerably over the years --

F So that it's inappropriate language for their age group and sexually explicit language, um, provocative language, you know, it's really, really changed. Really changed.

F Hmm. And expectations for them --

F They don't see that boundary anymore, I don't think.

F They don't realise --

F But they must be hearing it and seeing it.

F Oh yeah I agree

F I have had Year 3 children who I can only say must have seen porn --

F Hmm. I have got ones that I have had to tell parents that they have been swearing and they said, I told you never to use dad words, they're only for dad to use.

And you think, well of course they're going to use them. If they see you get upset and use that word, they think when they get upset they can use that word but -

F It's, it's that concept. I have told you not to even though I do.

(Focus group additional school 3)

It would appear from this discussion, that practitioners viewed some children as being exposed to too much too soon by Absent Parents, who have misjudged the appropriateness of content for a child. There is also an implication that the Absent Parent also disconnects from the need to take responsibility in their role in their child's behaviour because of this exposure, believing the child should be able to understand that an adult can say a swear word, but a child cannot.

Perception of judgement also varied between the two parenting styles. Absent Parents did not appear to be typified by concerns for judgements on their parenting. Time Poor parents were very concerned about the judgement of others. For these parents, the concerns for judgement appear to be more centred on 'keeping up appearances' as opposed to worrying about perceptions of parental risk management, as seen in the Cottonwool Parents. For Time Poor parents, concerns about perceptions of whether others judged them as a 'good parent' – related to creating a 'picture perfect life'. That is, making the right decisions *for* the child, as well as meeting societal standards as to how a 'perfect family' should look. A School Leader spoke of his sadness at witnessing parents who he felt were more concerned about how their parenting 'looked' online than being present in the moment with their child:

"We have a, a dance academy here…. You come and sit while the child's having the lesson,,,, Mum and Dad's on the phone, the child's on the iPad, they're not talking to

each other, you know. And there's no, there's a break, there, there's no support network sometimes for families and all they see and all a lot of parents see is what's going on Facebook or Instagram of that perfect life."

(Teacher 1 interview additional school 6)

In a way, this can be seen as creating a kind of push-pull effect – the child is pushed from the parent, due to a lack of time and resources to truly connect, but the child is also pulled towards the parent, to create the view of a 'perfect family life'. Many parents are seen as facing enormous pressure these days - managing their child's digital worlds, ensuring they are sculpting their child along a successful academic pathway, managing friendship issues - to name but a few dilemmas mentioned across the scripts. For example, some children reported feeling *'stressed'* as a result of all the competing demands they have to deal with –

"P1: Ummm, like seeing how much I have to do and I have hardly done any because I have things on.

I: What things do you do?

P: I do football, I do, I go to the gym and I ummm go swimming sometimes.

I: Okay, and how about you?

P2: "Ummm, I feel that its just, its just stressful sometimes, when you have everything put together, everything on top of each other and you need to try to get through it and

sometimes it just comes to the end of the week when your just sat there doing homework because you didn't have time to do it in the week."

(CFG School A)

As a consequence, the child's life may be micromanaged by the parent in order to appear 'perfect', leaving little room for autonomy for the child - *"cos actually, particularly children today don't get a lot of choice….they get home and then you know, it's clubs, or after school or tutoring, you know, they don't have any element of decision making in their lives, or very limited…"* (Teacher interview school B).

The pressure to be perfect, and to 'have it all' almost seems to create a barrier to genuine connection within the family, as the parent is so concerned with how they are being perceived by those outside of the family, they are less able to connect meaningfully with those within the family, especially the child, who can become side-lined:

"Um, because, because lives are busier, and um, parents, like in the olden days mum was there, she didn't have to work, but now mums and dads do have to work…..I think people have an expectation to have an amazing social life as well, and all this. You know, you see it on the media…And I think sometimes the children get, even though we'd hate to think that they get a little bit side-lined…–"

(Teacher interview School D)

In relation to the GE experience, one practitioner notes how disconnected parents did

not actually appear to know *how* to interact with their child in nature, as it was not something they made the time to do: *"And a lot of their social life is through the social media and not actually parents going up to the woods and meeting up at the woods anymore and letting their children just have that freedom."*(Teacher interview additional school 2). Further to this, it was noted how disconnected parents in general did not view being outside with their children as important, and so often had a lack of understanding about equipment needed:

"Because lots, lots of them haven't tried, you know, because we had a, we tried to get, bring your wellies but they don't really have them, you know, they don't have the equipment because cash rich, time poor just parents haven't got the skills or the knowledge of what to do."

(Teacher interview additional school 6)

To aid with the conceptualising of these two disconnected parenting styles, table 6 below clarifies the different perspectives of each style:

Table 6 Comparison of disconnected parenting styles

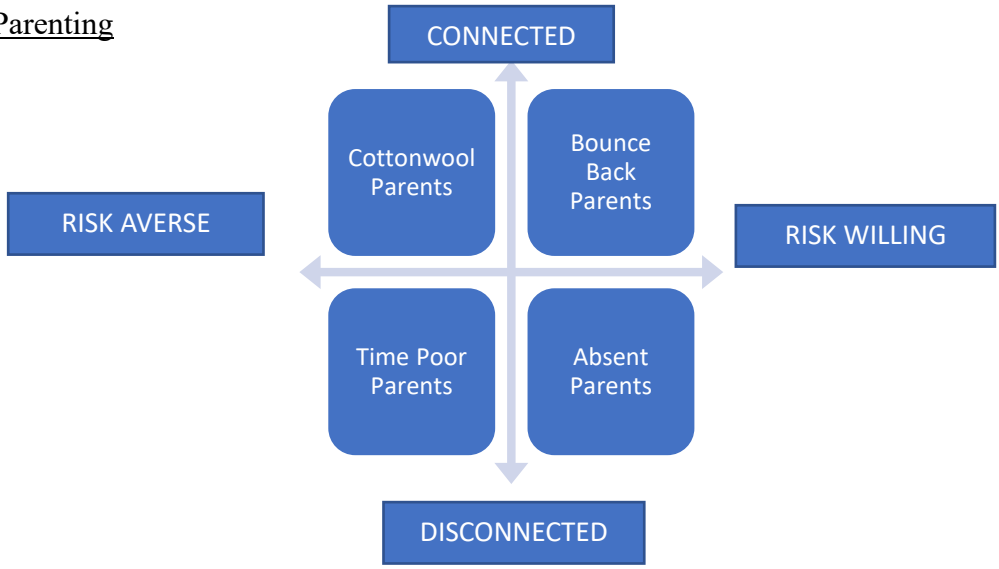
	Time Poor Parent	Absent Parent
Beliefs about connection	- Connection with the child is important but missed.	- Connection with the child is not as important/viewed in the same way and so does not really occur
Perception of risk	- The world is dangerous	- Risk isn't that concerning
Perception of judgement	- I need to portray a perfect family life so I look as though I can do it all	- Not concerned
Perception of the child	- The child needs me to always manage their lives for	- The child is left to navigate risk

[redacted]	them	- The child is viewed as more developmentally mature

4.2.4 Summary of parenting

Taken together, all four parenting styles can be thought of as a matrix. On one continuum, there is connection – disconnection, and at the other continuum there are attitudes towards risk, which are risk averse – risk willing. These two continuums interact, to create 4 potentially different parenting styles. This matrix is depicted in figure 5 below. The potential connection between parenting styles as a contextual influence on the GE primary school experience could be linked in several ways (i) the extent to which the concept of 'freedom' experienced in nature is something the child is used to experiencing/would benefit from (ii) how able to child feels to manage risks in nature (iii) how prepared the child is for the nature setting. These suggestions will be further discussed in Chapter 7.

Figure 5 Parenting Matrix



4.3 The Education System

Whereas education will be discussed in Chapter 6 with direct reference to a school's delivery of the GE experience, in this section The Educational System is concerned with the ideology which shapes the day-to-day school experience that forms such a significant part of childhood. This section therefore aims to provide another layer of context to understand the pressure that staff and children experience within the general education environment. It is important to provide this layer of analysis, as any GE intervention needs to consider the context within which it is expected to be delivered. Additionally, the outcomes of the GE may be able to target some of the negative impacts of the education environment explored here, such as academic pressure.

In this section, two subthemes will be discussed:

1. Accountability culture
2. Managing emotions

4.3.1 Accountability culture

When describing the education experience, progress, pressure, and accountability were words frequently used. Policy makers at the government level, demand results – and this is what I am referring to with the term accountability culture. Accordingly, accountability culture feeds into the curriculum, creating a pressure to meet the required standards to show that each child makes expected progress. As one parent rather aptly put it – *"yeah, pressure on the teachers and the kid are basically there to show that teachers are doing their job properly (laughs) and I'm sorry, but that's what it is!"* (Parent focus group school A). Thus, accountability culture can be viewed as

directly influencing the school experience for teachers, students, and caregivers alike. Children from a Year 6 focus group reported feeling stressed by the amount of school work they had to complete as part of their daily routine: *"Mine is the same because I usually have lots of things on and I have to do them and I have to do like homework as well"* (CFG SA)

In relation to the teaching staff, operating within this culture inevitably led to pressure, as teachers felt they were held accountable for achieving these standards within their own classroom – *"and there's the expectation that you will get them there…"* (Teacher focus group school A). This affected the way they had hoped to teach, versus the reality of what they were able to deliver. One way this impacted the school experience was a lack of creativity in the lesson plan, due to the emphasis on securing good test results. A consequence of this accountability culture, may have been that some teachers felt as though they have less autonomy over their teaching:

"you have to meet certain things, don't you, as much as we all can try and be creative about it ……..cos of testing, we have constantly got that on our backs, the whole-time cos we'd all love to be creative all the time and have the practical stuff for maths, but realistically, when they get to Year 2 they're not allowed it."

(Teacher focus group school A)

Curriculum volume also influenced the classroom experience. Teachers stated they are facing mounting pressures to churn through the curriculum, and for all children to make progress:

"there's quite a lot, and certainly with English there's different text types, it's like have we done autobiographies? Have we done biographies? Have we done mechanics? And it's just that kind of - not just for the test, but the feeling that you've got to teach them everything so you know they've done it and if we could just, you know say for this fortnight we are going to be looking at this to make it really go, there's no time anymore to redraft, to go back in, and you know there are pieces of work that they are proud of, but …it's not just because of the tests, you feel there is so much you have to teach them"

(Teacher focus group school A)

Within this rich quote, as well as highlighting examples of teachers feeling the pressure to deliver key content, it is notable that the teacher talks about the impact for the child on deepening their skill set. There's little time for students to write, reflect and re-draft. The teacher in this extract appears conflicted between knowing what is important for progress – the reflection period and a chance to improve work - versus the pressure to meet the accountability culture criteria. That is, that all the curriculum on the list has been achieved. Changes in accountability over time were also discussed, with a viewpoint from many parents and teachers alike, that as the child moves out of the EYFS and into Key Stage 1, there is a big shift towards the learning being dictated, and students having far less freedom over the pace of their learning – *"when you get to key stage 1, part of the freedom on terms of your play is taken away from you from reception"* (Teacher interview School D).

Another consequence of an Accountability Culture was that parents also reported feeling pressure to support their child to manage the curriculum at home, although, many did not feel confident enough in their own skill set to do this – *"yeah, and then the 10 minutes that we get with them at parents evening, when they are saying "this is how you do it" I need longer than 10 minutes to understand."* (Parent focus group school A*).* Some parents also felt resentful towards the homework their children were being asked to do, which was sometimes seen as a barrier to parents being able to spend quality time with their child: *"The only time they have with you is sad time cos you're making them do their homework and they don't want to do it."* (Parent focus group school A). This might encourage a culture of 'tick box teaching', where some teachers feel they have to plough through what they were expected to teach, rather than them making the judgement about what is needed -*"Partly, but it's the new curriculum and parts of the old, it's very "you have to teach this" all these things to be taught and we are like have we taught that? Have we taught that?" (*Teacher focus group School A).

It is important here to note, that because of ploughing through, some teachers made the decision to 'side line' certain topics which were not academic subjects on which they would be judged, to buy some breathing space to focus on these latter subjects. For these teachers, the topics that were side lined were, often, subjects which emphasised the pastoral, nurturing side of education, or less-academic subjects such as Physical Spiritual Health and Emotional (P.S.H.E) or Physical Education (P.E):

"I'm well aware that it varies from class to class, in this class are no big issues, but I am well aware if there's an assembly or something that needs to be put up for display, or a visitor coming in, that is one of the subjects that is going to get pushed (PSHE)"

(Teacher focus group School A).

The choice to side line subjects such as P.E was not a decision made lightly by the teachers, and they often felt conflicted by their choice to side line the non-academic subjects; *"and if I'm really honest, I'm struggling to fit in the two PEs as I don't have an afternoon slot, so do I compromise the literacy and the maths and the phonics to do PE? I know that's bad…"* (Teacher focus group School A). The culture of accountability may be creating feelings of failure, for some students and teachers – *"It's basically setting up your children to fail isn't it…*?" (Parent focus group School A). The heightened emphasis on all students making 'expected progress' has led to some concerns from teachers and parents, that children feeling like failures, compounded by higher barriers to achieve the levels of expected progress - *"it's so much harder to reach those expectations and that has a huge effect on the way they feel about themselves."* (Teacher focus group School A.) Teachers were concerned that some children were becoming demotivated to try, and that, in some instances, there was an 'academic hierarchy' where children compared themselves against one another - *"…and he was like but I'm not getting better fast enough, everyone else is getting better faster than me…"* (Teacher focus group School A.) However, some of the students were coping well with the academic pressures, helped when the school and parents were sending out a message of 'playing down the importance of the assessments' -*"I don't feel like much pressure, because the teachers always tell us that it doesn't really matter, and my parents keep telling me it's doesn't matter what you get, so I don't really feel much pressure"* (Year 6 student focus group School A). Most teachers also worked very hard to show students that they had made progress, even if they weren't able to be moved into the 'expected progress' bracket which helped to

lessen some of the sense of feeling like a failure: *"Someone in my class actually said to me the other day in science that he doesn't like it, and we had a little chat about progress and I was saying like look you've got so much better"* (Teacher focus group School A).

However, teachers felt like they couldn't provide the students with the level of nurturing that was needed which promoted feelings of guilt – "*You feel like you have let them down at times, it's tough"* (Teacher focus group school C*).* The accountability culture was constructed as portraying a 'content over caring' ideology. Having to manage emotional problems in the classroom was an area which caused conflict for the teachers, as whilst they wanted to give the children their time, so they could teach them ways to cope with difficult situations, they needed to move on as quickly as possible to press on with the curriculum:

"That's the hardest thing in all my years of teaching to manage - that sort of pastoral support. Cos obviously you've got your curriculum to teach, and you are trying to work through that curriculum, but then if something unexpected comes up and you are on your own, it can be really difficult to deal with that issue in the classroom"

(Teacher focus group school C).

At the same time, some children expressed discomfort at the thought of discussing their emotions in front of their peers – *"I don't feel like I would want to express my personal problems to other people because, um, they might like feel like its' feel about it in different ways…"* (CFG Years 3 and 4 School A).In some instances, children would seek out their teacher as a 'safe person' to disclose their personal problems to, and sometimes, the parents needed support from the teacher as well. However, the teachers

expressed feeling torn about the need to push through with the teaching of the core content:

"It is a lot of pressure, it is, cos you know we have them for that six hours a day and there's a lot to pack in to those 6 hours, and it's hard cos you want to , you know I love having that chat with them at the beginning of the day and then it's like "right, we've got to do our maths" and it's hard cos you don't want to cut into those , especially if they've got something that is worrying them, and you don't want to cut them off, so it's hard to find the balance"

(Teacher focus group School A)

4.3.2 *Managing emotions*

Some teachers felt that the incidences of mental health problems for children had increased compared to previous years. They were hearing about or seeing more incidences of anxiety, autistic spectrum disorders and undiagnosed behavioural issues. *"It's, I've read it's becoming more of an issue isn't it?" (*Teacher focus group School A) This was a view shared by all parents and teachers interviewed, with one parent stating – *"well I think we need to look in the crystal ball and see that mental health is just this ticking time bomb, and I just think that we need to be addressing it and we are just brushing it under the carpet…" (Parent focus group School A)*. A consequence of this was that many of the teachers felt as though their job description had now shifted, sometimes beyond what they could manage -*"I quit my job, because I wasn't able to, I wasn't able to compete with the demands of a 30-child class to then actually deal with that in a classroom because you just physically and mentally and emotionally can't."* (Teacher focus group School A*).* Despite the change in demands for the teachers, it was

reported that there was a lack of support for teachers to deal with the changes in their role. This was due to the system already being experienced as overstretched, meaning a lack of hands-on support. There was little or no time for supervision with senior staff, where staff had the chance to debrief about their experiences. Funding cuts for accessing child and adolescent mental health services (CAMHS) have also been cut, which some felt added to the pressure:

"There was support as much as there was support, and we have behavioural support works coming in and saying "do this, and do that" but, realistically, you can't do, the person is not a teacher, and you know if you have no other support and you've got 29 other children can you realistically put all of that in place? No, you can't."

(Teacher focus group School A)

Some teachers also appreciated the opportunity to gain support from external agencies, although the waiting list to receive this help was often very long, and due to budget cuts, the quality of the service was being reduced:

"Ed Psych's can come in and they are obviously very talented people, but you can tell the difference between the Ed Psych that's done 5 years in the classroom and the Ed Psych that hasn't done 5 years in the classroom, because the advice that you get and support you get… but that's the other problem with the Ed Psych they've been cut so it's there in, they observe and they're gone"

(Teacher focus group School A)

Nevertheless, a coping mechanism that teachers did employ was to seek emotional support from one another. Some reported close bonds between teachers which served as support. These teachers found this a form of social support, which they relied on to get them through the job, particularly as they felt that unless you were in the job, it would be almost impossible to understand what they were going through:

"Cos sometimes our caretaker will be going to lock up and he's like "oh you are all just nattering" but if you don't download and have a proper chat with people then you do keep it all and you go home and your family who aren't in teaching they don't get it?".

(Teacher focus group school C)

Lastly, parents also reported feeling a lack of support for their children if they had special educational needs, which weren't severe enough that they warranted an educational health care plan, but moderate enough that they did require additional support in class. In the case of one parent, who paid for a private educational psychologist to diagnose her son with dyslexia (due to there being too long a wait to go through the school referral system), she expressed frustration that the report created by the external assessment was not being used inside the classroom:

"I find it is one size fits all, I got his report done, and they've done absolutely nothing, it set out in the report he needs things to be visual, and this and this and this, but it's only being done one way, he fits in the box because he's not so severe - they won't do anything. If you are severely dyslexic they'll do something, but if you still fit in the box they won't…"

(Parent focus group school A)

This lack of support within the classroom left her son lacking confidence –

"Yes and his confidence is gone – he is so intelligent, and he knows how intelligent he is cos he's really good at reading, but when he tries to sound out a word, you know, it's gone, so he knows that he's failing, and he's going 'I now don't want to write this…'"

(Parent focus group school A)

4.4 Chapter Summary

This chapter has attempted to weave together the narrative of childhood which emerged across the transcripts and apply it as a contextual factor which may influence the experience of GE. Children today live in two worlds – the real and the digital, and this presents many levels of complexity for the child, the parent and those agencies who work alongside the child. The overall experience of childhood appears to be constructed as a cause for concern – with children and parents withdrawing further and further into their online worlds, which may not be accessible to both parties. Alongside this, the experience of childhood can vary immensely, based on parenting styles, and this feeds into the child's exposure to risk and their subsequent ability to handle challenging situations. The digital worlds also merged into elements of parenting styles, with social media acting as a source of judgement and pressure for parents, in many cases. It also presented as a source of age-inappropriate exposure of risk for some children. Lastly, the environment where children spend the most of their waking lives – school – is one that somewhat resembles a pressure cooker. The teachers in charge of the children appeared to be under an enormous pressure to drive attainment in

students, leaving little room for children to thrive in subjects outside of traditional academics. Children are compared against each other to meet externally set standards, with some children unable to receive the support they need, either academically or emotionally, due to time constraints and/or a lack of training for staff. Children and teachers alike reported feeling like failures, and priority did not seem to be given to reflection or creativity within the classroom. Curiosity appeared to get in the way of the curriculum, in many cases, where teachers did not have the time to foster a child led enquiry approach beyond Reception class. There may well be complex interactions between the three themes of 'digital worlds', 'parenting' and 'the education system' which needs to be further explored. Together the findings from this chapter (1) validate the need for interventions like GE in primary schools to counterbalance the impact of digital worlds, parenting styles and mental health detriments and, (2) highlight the potential barriers outside of the school setting to such interventions being well received. These points will form the basis for the discussion in Chapter 7, where all the themes across Chapters 4, 5 and 6 will be analysed in relation to each other, helping to lead to a richer understanding of the contextual influences surrounding the GE experience in UK primary schools.

CHAPTER 5

Being Green

5.1 Being Green

Throughout the analytical process, it became clear that 'green exercise'[1] did not capture the complexity of what it means to expose children to nature within the school setting. The theme, 'Being Green' describes the *green experience* in the *school setting*, as understood by the child, parent and teacher/facilitator. Within the overarching theme of Being Green' two sub themes emerged;

(1) *Freedom*, which refers to space, being physical and choice

(2) *Connection*, which refers to interactions with others, nature, and the self.

Taken together, Freedom and Connection appear to be the centrepiece upon which the green experience for the child in a school setting can be best understood. In this chapter, each subtheme will first be explained with the support of quotes before moving to a broader analysis of how these concepts interact with each other to create the 'Being Green' experience.

5.1.1 Freedom

> *"Well on residential trips you have to do things they tell you to do and you feel trapped, but in Forest School you can nearly do whatever you want."*
>
> (Child focus group School C)

References to freedom were prevalent throughout accounts, suggesting that it plays an important role in the green experience for the child. A sense of freedom in nature appears to be multi-dimensional. In some instances, being free in nature was understood by the children to mean space, which was almost always connected to

[1] As previously discussed, the term 'Green Exercise' can be defined as *"physical exercise undertaken in natural environments"* (Mackay, Graham & Neill 2010).

being physical -*"I like nature, because you have more space to run around…"* (Child focus group School C). For some, the space afforded by being outside alleviated concerns of harm to themselves when being active, as described by a Year 1 child – *"I do a lot of running, so I have more space outside and if you play football inside you can fall over and bang your leg very hard, outside the ground isn't as hard."* (Child focus group school A). Some children also expressed concern that they may damage school property by being physically active indoors, worrying that they might *"break glass"* or *"bump heads"* preferring to be outside where there was less risk of harm to others, or equipment.

Physicality appears to be a core part of the green experience for children. When children were afforded the freedom to simply 'be' in nature, PA was reported to be prominent as children explored their environments:

"That's happening, straightaway in a, in an outdoor, in a Forest School or an outdoor learning environment straightaway, they are, they have to use their legs, they have to use their arms, they have to use things to climb, to swing, that helps balance, that helps coordination. So it's like massive, massive benefits." (Teacher Interview Additional School 5)

From observations of the children in outdoor settings, two types of physicality appear important:

1. Spontaneous PA to explore/play in nature
2. Physical demands experienced during environmental mastery/ risky play

In relation to (1), much of this physical interaction appeared to happen in the moment, as if without any prior thought. Teachers referred to children as having *"bags of*

energy" that they needed to get out, and when outside they would *"scatter".* Here, the child would be physical to play, seemingly, carefree in nature:

"My daughter on the way to school if it rains she wants to jump into puddles and I'm like – 'don't do that as you will get yourself wet and have to sit in the cold all day' - but they are children and they don't think like that do they? They just think immediately, I'm going to jump into the puddle.."

(Parent Focus Group School A)

Being free in nature automatically means the child can be more physical, which can then further reinforce this feeling of being free, thus encouraging spontaneous PA- *"think it makes you feel free as you can just be running around all over the whole place, or you can do press-ups…. so it makes you feel free if you are outside"* (Child Focus Group School A Years 3 and 4). Moving on to (2), in some instances, PA was a direct result of navigating the natural environment. Trees were a major draw here for many children; it was noted during several observations, and stakeholder accounts, that many children naturally gravitated towards them. For some children, having to navigate their way around the terrain was part of their physical development; an opportunity that was not often provided in the traditional classroom setting:

"… so and it would've done her, you know, confidence loads and loads of good. I mean it did, it did her confidence loads because she loved it, the sensory experience of it but I mean the, the benefit like to her gross motor, er, you know, physical muscle build, building, um, being able to climb, being able to pull, you know those things that, the opportunities are not as much here, if you know what I mean?"

(Teacher Interview additional school 5)

Another potential benefit of the movement-based interaction with nature is that children are thought to have a lot of pent-up energy from being inside the classroom, which they were then able to expel through being physical in nature:

"The others were all keen to go and, some of them did run, we've got some boys that are very keen to run and some of the girls, they just walked round, but they were still exercising moving and they came back and then they were focused to write."

(Teacher Interview 2 Additional School 6)

For some teachers, children were thought to not have much opportunity to use up energy. However, despite being referred to as having *"bags of energy",* many teachers and parents commented that their children were relatively sedentary, and children as young as Reception are not entering school with the core strength needed to sit up and write, nor the basic dexterity needed to hold a pen. Children were thought to be transported short distances by car, with the result that some lack basic physical fitness. It must also be noted that not all children appear to interact with nature through spontaneous movement, on the contrary, some were very reluctant to move at all. This was mostly thought to be due to the child's regular lifestyle being sedentary: "*Erm, they just don't go outside because, you know, they're at home, they're wrapped up a bit too much, they're on devices at home"* (Teacher interview additional school 5)

During one observation of a Forest School setting where the children were required to walk some distance to the setting, it was noted that this was a struggle for some. However, as the weeks passed by, these children complained less about the walking. Arguably, the innately physical way that children interact with nature, provides an

opportunity to counter the lack of PA perceived in children in society today. Perhaps this could indicate that a benefit of "Being Green" is that children may be less sedentary, as they are given the space - and subsequent freedom - to be physically active:

"And connecting with nature. You know, they've been up the tree, climbing up the trees. There's no, obviously there's boundaries about how high you go but they're testing themselves…..And it's about the holistic learning, it's about them setting themselves boundaries and challenges."

(Teacher Interview 2 School 6)

Aside from a feeling of 'space', freedom related to exploration, with one teacher referring to nature itself as a *"playground."* Being in nature provided children with a freedom to choose how they interacted with the space through exploration, as children are tasked with deciding *how* they want to interact with the outside space.

5.1.2 Choice

Choice was not always concerned with choosing *which activity to do outside*. In some settings, children were able to decide for themselves if they wanted to use the outside space as a break. Some teachers commented that, as educators, they felt they had more freedom to choose to be unstructured with the children's learning when outside. Outside of Foundation Stage, the normal teaching experience is constructed as being heavily planned to prepare students for assessments. For example, when discussing allowing children creative, free play outside, one teacher rather remorsefully reflected that – "*realistically, when they get to Year 2 they're not allowed it"* (Teacher Focus

Group School A). However, being outside in nature gave them the freedom to 'let go' of the helm and let the children decide what to do once the planned activity had finished, or, to do something completely unstructured. This is important, as the teacher's perceptions of freedom to let go when outside may further strengthen the construction of 'Being Green' to mean 'freedom' for the child:

"And that choice, the freedom to say, "well we've done the thing I planned, and so what else is there to see?" and then guiding them to make that decision – "we are going to climb a tree and that's what we are going to look at".

(Teacher Interview, School C)

This was not true for all practitioners and there were some contrasting experiences. Some teachers were reluctant to 'let go' and allow the children to make free choices during green provisions, unless it related to some structured learning outcome. However, this approach could be providing a more 'diluted' version of the Forest School provisions, which could lessen the potential for impact on the children:

"I did have an outside classroom at an old school which we used and you know, which was nice, we would take turns to do that and we do get outside sometimes in things like maths and science to measure things or to do big experiments and that sort of thing, but don't do much just going outside to be outside, it's normally for some sort of purpose."

(Teacher Focus Group School A)

This reluctance was also connected with behaviour management, with some teachers

expressing concern that if the students, boys in particular, were allowed too much freedom, teachers may lose control of them altogether. This was sometimes fuelled by pre-existing beliefs about the child's typical behaviour patterns:

"Um, I just feel, I have, you know…. I have got a few tricky boys, let's say, in my class and if I give them too much freedom or too much unstructured time .....They, um, take that as I'm going to be silly"

(Teacher Focus Group School C)

Opportunities to experience freedom in the outdoor setting are reportedly not equal. For some children, teachers felt as though the only time they were able to experience a sense of freedom in nature was in the school setting. Furthermore, some children may have felt out of their comfort zones as a result of experiencing this freedom, with several practitioners commenting that some children did not know how to just 'be' in nature, e.g., *"…and everything's been done for her, in her play and activities, that she doesn't know how to play already….at four, I mean it's really shocking actually."(*Teacher interview additional school 5). However, despite this reluctance to make a choice, a reason why Being Green may have been impactful – for these children in particular - is that freedom experienced via nature exposure seemed to provide a time-out-of-time from an otherwise 'micromanaged' childhood, where the child gets to be the actor in their lives. This is juxtaposed to the child's role as passive receiver of instructions in a structured classroom setting, which is how many teachers constructed childhood:

"…cos actually, particularly children today don't get a lot of choice, they get home or they come to school and everything is decided for them…..you know, they don't have any element of decision making in their lives, or very limited."

*(*Teacher interview additional school 2)

There appeared to be a difference in the freedom afforded to students, dependent on whether the provision was a Forest School, or a more formalised 'green' club. A Forest School is based on the philosophy of child-led, risky, loose play – the teacher is there as a facilitator to the child's autonomous experience. There is no intended goal to achieve within a limited timeframe. In contrast, a more 'formalised club' is constructed as a group which has a shared purpose, to achieve a desired end goal. For example, in one observation of a gardening club, the children were tasked with planting seeds and watering them. The teacher would inevitably finish off the task with/for the child. Here, the teacher very much plays the role of the 'leader', guiding the students towards achieving a desired outcome:

"I do think, because if it was gardening club or sports, it would be very structured, and I think the wonderfulness of Forest School is it's so unstructured, in a very structured way…. they've got those opportunities to be themselves"

(Teacher interview School D)

Thus, it is important to note that freedom in relation to 'Being Green' was not always experienced in the same way – it depended on the *type* of green activity taking place. For example, in one focus group, the children compared usual residential trips with their Forest School experience:

"P1:Well on residential trips you have to do things they tell you to do and you feel trapped, but is forest school you can do nearly whatever you want

I: What do you mean?

P: well on the last forest school trip we could climb trees if we wanted and make dens, and use the space and yeah"

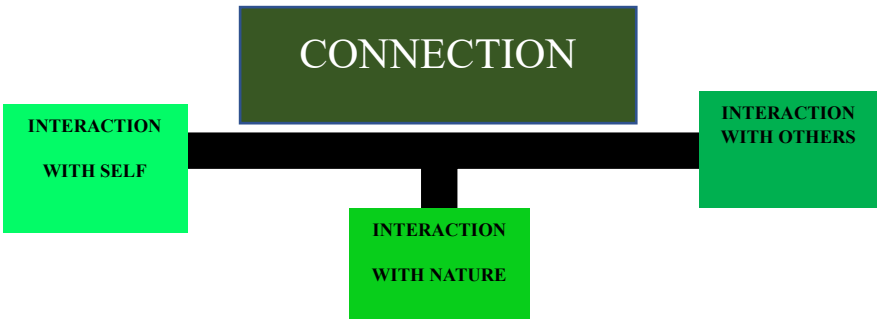
(CFG School B)

Further to this, 'Being Green' may be constructed differently across children; if a child rarely experiences being in green spaces, the experience could be construed differently from a child who has regular access

5.1.3 Connection

In this analysis, connection refers to interactions with others, interaction with the self and an interaction with nature, as illustrated in Figure 6.

Figure 6 A thematic Map of Connection



5.1.4 Interactions with others

Being Green was thought by teachers to create more opportunities for communication between adults and children, as well as between children and their peers. Nature settings were seen as conducive to communication. Walking/jogging together in outdoor spaces were conceived as presenting a natural stage upon which conversation could easily emerge. A reason cited for this was that people feel more comfortable to converse in nature:

"I find we have a more open conversation with the kids and as adults as you are both walking and both looking ahead and there's something about looking ahead of you, it's not eye to eye over the table, and I have some lovely conversations with the children who probably wouldn't engage with the teacher otherwise, but because it's non-threatening, you are both walking in the same direction and there's no eye contact – some people really open up."

(Parent Focus Group School C)

In addition, when outside there was a sense that time had been put aside, to go out and spend time together, creating further opportunity for more high-quality interactions. Adults reported enjoying these interactions with the children. A reason for this concerns family life - which was typified as being 'distracted' by many participants who shared their experiences of being busy juggling work commitments alongside managing the household and extra-curricular clubs for children. Or, the family was so distracted by technology, that they were often disconnected from one another; *"I don't feel people socially interact with each other anymore…."* (Parent focus group school A). The increased communication fostered by Being Green were seen as providing an opportunity for reconnection in a wider society where having the chance to meaningfully converse with one another is limited - *"I suppose it's just easier to talk isn't it…. You've got the time…."* (Parent focus group school A).

As well as being more frequent, the nature of the interactions people had outside, were often described as being more meaningful for various reasons.~~,~~ For example, some children commented that being outside created more opportunities to have a sense of privacy, where they could talk with friends without the worry about being overheard: *"Yeah probably because I feel that it is more open you're not like, no one is going to catch what you're saying you can just say stuff to them and your just outside."* (Child focus group School A). Additionally, people often reported feeling more present in the moment when outside, whether in the school setting, or as a family, and this was a catalyst for meaningful engagement:

"I want one on one time, I mean even when they are sat at the table you are not engaged as you are preparing a meal…you will not be fully engaged but when you are out on a walk you are engaged, you are both fully engaged, and you are in the moment"

(Parent focus group school A).

Within the school setting, some teaching support staff noted that children seemed to confide in them more when they were outside, possibly because there was more chance for a *'free flow'* between exploration and time for talking:

"I think children do tell you a lot more when you are outside, and you are doing something than when you are in the classroom, they do tell you a lot more. They'll tell you about their worries or they'll tell you about their experiences, things like that."

(Parent Focus Group School C)

Thus far, Being Green has been described as fostering connection via more frequent and meaningful conversations. Aside from this, 'Being Green' provides challenge and risk, as children were often placed outside their comfort zones., *"he's tough but he cried before we got on these bikes and said I don't think I can do this, I can only ride a mountain bike this bike has thin wheels…"* (Parent focus group school C). In this extract, it appears that the outdoor environment has created a platform for children, such as the one above, to express vulnerability.

The extract below describes another experience where a child who was normally perceived as 'tough' by his classmates, found riding a bike in a velodrome incredibly challenging, to the point that it reduced him to tears in front of his peers, thereby revealing his vulnerability. In this case, the child's peers and teaching staff all rallied

around him, offering him support and empathy which helped his confidence: *"I think it was actually, because their reaction was, quite, amazing really, they all supported him and said, "don't worry and we can do this and whatever you know"* (Parent Focus Group School C). In this instance, Being Green fostered connection through eliciting support from others. An aspect of being outdoors is the chance to work with others towards a shared goal and develop a connection through teamwork skills, as was frequently seen in the context of Forest School and residential trips. This helped some children to feel more comfortable about *receiving* support from others. Children also got to experience *giving* support to others; both these factors were beneficial for enhancing social connection - *"well we kinda of had to like trust each other, when we started out, you had to hope that the other person wouldn't drop a log on you, and you had to really trust them…". (*Child Focus Group School B*).*

For some children, the experience of support was particularly novel. In School B, the Forest School Leader commented about the impact that Forest School had on a child's ability to trust others, something she had previously struggled with:

"….And she now, you know, 3 months on, her responses to adults and the way that she responds to peers in her class has changed, and she's started opening [up] about how she is feeling about the situation she is in, and to her that's a huge, huge deal. Before she would shut down and she wouldn't talk to anyone. She wouldn't communicate with her mum about things that were going on. She would withdraw and shut down. Now we've got a very different young lady on our hands and someone we can help because she feels she can trust us."

(Teacher interview school B)

The view of the teacher was validated separately by the student, who commented that she now felt more able to trust people, following her time at Forest School*; "I've learned that you can trust some people….." (Child focus group school B).* As well as helping to affirm to children that other people will be there for support, the experience of sharing vulnerability signals to the children that *everyone* needs support from others sometimes, and we can all feel vulnerable – as was the case following the incident with the aforementioned child who struggled to ride the bike, and broke down in front of his peers *"…and their reaction was incredibly caring, and they obviously realised that he had a need that they hadn't seen in him before."* (Parent Focus Group School C).

'Being Green' provides opportunities for children to open up more freely with each other and with adults as people are more engaged in the moment, or because people make more time to converse as there are less distractions. 'Being Green', by its very nature, requires children to master their environment through problem solving and risk taking. With this, a window of vulnerability can open that can strengthen connection with peers and adults, as children can learn a) it's okay not to be okay – others are struggling too; b) bou can trust that people will be there to support you, and c) the communication skills needed to support one another.

In addition, expectations about children were reportedly challenged outside of the normal classroom setting. Teachers saw 'a different side' to the child, which aided them in getting to know the child better. Some children appeared to be more confident outside than in the classroom setting, which allowed them to show different capabilities to the teacher. Teachers believed that children could act positively, in unexpected ways,

due to being outside:

"I think it's just watching the different children that may, and particularly with some of the children, the children I don't know or maybe, you know, you've heard about maybe they've, you know, they might struggle with an element of behaviour or something and you just see them in a different environment and you see them, I guess you see a different side to them and it's usually a more positive side –"

*(*Teacher interview School E)

In other circumstances, Being Green provided leadership opportunities. Some children would shy away from this in the classroom but welcomed the chance to lead in the outdoor setting:

"Yeah, and it was interesting, it was Year 2 last year, they had a boy in Year, Year 2, and um, quite quiet in class….Forest school he was telling them what to do, he was, you know, he was, and the teacher said, it is so amazing, I have never seen this side of him, but here he's just like a natural leader…."

(Teacher Interview School D)

Being Green also allowed children the choice over how they mastered their environment. It was noted that by taking the child outside, you enable them to operate outside of their usual zone, sometimes revealing other parts of themselves which teachers had not noticed. This might also be outside the usual order of things, as teachers were sometimes more nervous of being outside than the child, which is discussed in Chapter 6:

One teacher commented on how by denying the child the chance to be outside in a risk-taking environment, they miss seeing the child for who they really were: *"But what, what they're missing is seeing a completely different child potentially than what they have in a classroom."*

*(*Teacher interview additional school 5).

Despite this, 'coming out of their shell' was not the same for all children, with some benefitting more from the Being Green experience than others: *"What I find with the other students is that they are hesitant to push themselves through that comfort zone, but once they do they are elated, and they push themselves through". (*Teacher interview School A). Interestingly, expectations were often challenged when it came to children with SEN (Special Educational Needs), and in some instances, behaviour management was easier for these children when they were outside. One teacher commented on how they had been very apprehensive about taking two children with Autism into the outside terrain, due to a concern for behaviour management, which was subsequently alleviated:

"But we've had, and I've got to say it was a worry, last year's Reception, we had two really autistic lads. And I think it was my first year, um, well it wasn't, no, it wasn't my first year, it was my second year, but with that group, because there were so many, you know, SEN children in it, I was a bit worried. But, because how they were in class, but it was totally different, how they were at forest school, and I think it's so sensory and tactile, and it's not in a classroom and all echoey and sounds, and you know, it was, yeah, they, they really responded really positively. And I was, I will be honest, I was a bit terrified, but I had nothing to worry about."

*(*Teacher interview School D)

As well as the sensory benefits of being outside which could support behaviour management, by supporting children with SEN/chronic health problems to take risks in the outside environment, some teachers and parents discovered that the child could achieve more than they had expected:

"Now I'm thinking of a particular girl we had a couple of years ago how the SEN lead here was really like, she won't cope, she won't cope, she'll be falling. Yeah, she fell over loads but then she got up again."

(Teacher Interview Additional school 5)

By allowing the child the freedom to take risks, the teacher was able to see a new side of the child. This was particularly the case for Forest Schools, where using sharp and dangerous tools, as well as fire, form a key part of the programme. In the extract below, the teacher is explaining the importance of trusting the child - by 'letting go'. This teacher felt this was key to the development of the child, especially those for whom being trusted by adults was quite a novel concept:

"I know some children who have some very extreme behaviour, where they have used forest schools as a kind of therapy activity for the children, actually for those children, you would have looked at them and give "you'd never give a kid like that a knife in a million years, and the risk assessment around it would be crazy, you don't know how they are going to react". And actually, the difference it makes that you put the trust in the child to do that, and their reaction to being given that trust, and learning the fact

that it's a tool and it's there to do a job, has changed those children's views and outlooks on that sort of thing,"

(Teacher Interview School B)

Expectations of the child were not just challenged for the teachers. Nature was reported by one parent volunteer as "*a leveller'* whereby some children also began to *see each other* in a different light outside:

"Um, and also, like I said with the little boy who likes finding bugs and everyone's, ooh, you're finding bugs, you see different children in a different light, and they suddenly think, ooh, so and so's really good at building a den, aren't you"

*(*Teacher interview school D).

Social grouping expectations were also challenged, as Being Green may have enabled some pre-existing factions to shift, allowing new friendships to flourish. Some children experienced an increased self-confidence outside, compared to inside the classroom. For others, this was due to exploration, and finding new shared interests with different people, who they may have not considered building a friendship with before interacting alongside them in nature -*"Erm, but the, you know, the, with the forest schools I've been out there and seen, you know, children that wouldn't necessarily play together well normally working well to build a den."* (Teacher Interview 2 Additional School 2).

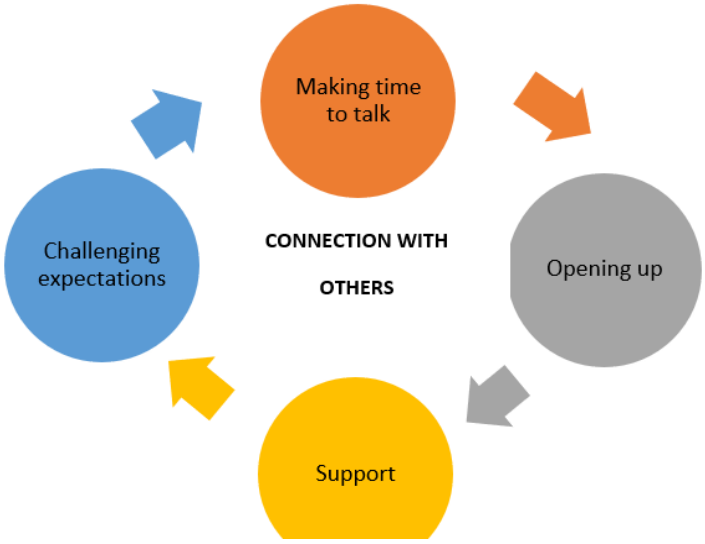
Figure 7 depicts a potential pathway through which the Being Green experience may lead to 'Connection with Others', which includes:

1: Making more time to talk due to less distractions which could lead to more meaningful conversations, because people are in the moment and 'open up'.

2. Taking part in activities outside their comfort zones creating the potential for vulnerability, which allows people to connect through the offer of support.

3: Outdoor settings can create opportunities to challenging expectations of how the educator perceives the child, as we as how children perceive one another.

Figure 7: A potential pathway through which Being Green facilitates connection though Interaction with others



5.1.5 Interaction with nature

Throughout the narratives, it was reported that children appear to have a connection with nature. One strand of this connection is centred around challenge. The terrain is multi-level and multi-textured, the weather can be temperamental, the space is shared with other creatures and there may be plants that could be poisonous. Essentially, the child is a guest in the nature setting, and they must learn to master this environment. It is noteworthy that interactions with nature are typified by many educators as being in

stark contrast to the school environment, which has been risk assessed, with hazardous objects removed:

"…it's all about taking risks isn't it, say you are in nature, and you are walking along over a brook or something, whereas on a balance beam in school everything is safe, and you aren't really taking any risks, learning about life, taking a risk".

(Teacher focus group school A)

The interaction with nature requires the child to rise to the challenge, both physically and mentally. This creates an opportunity for the child to develop executive functioning skills, such as problem solving, and assessing risk for themselves, so that they can establish their boundaries*:*

"Umm something I've learned about myself is if you try it you can do cos when we were doing the dens I couldn't get the peg to stay in the ground and I learned if you put it this way it could stay in the ground."

(Child focus group school A)

Additionally, exposure to challenges may also afford the children to feel a sense of achievement, and pride:

"…watching them achieving and getting that level of confidence was incredible cos they found they could do things, and I'm sure those experiences will have a knock-on effect on something else and they'll think "I can do this I can achieve this" and boost their confidence to try something else…."

(Parent Focus Group School C)

Aside from challenge, interaction with nature had elements of restoration and reflection. Many children presented as relaxed, as the provision of a space promotes a chance for restoration, and to 'breathe' -*"Umm, I think being outside is quite relaxing, because sometimes if you are really stressed it can be like to get some fresh air and it can clear your mind"* (Child focus group school A).

In some instances, Being Green provided a haven from an otherwise chaotic homelife:

"He's got quite a severely autistic older brother who takes up a lot of time and he does quite a lot of caring --So, for him to just have a soft toy and sit or just walk round with nobody hassling him, and nothing expected of him, it's a very special time for him."

(Teacher 2 interview additional school 6)

A key feature of Forest School is the use of a fire circle, and this also provided a space for children to pause, reflect and ponder some deeper questions -*"And have those reflections and have those understandings, you know around the fire circle maybe at reflection time at the end that's really important as well…. And it helps, you know, it helps children understand the dynamics of society."* (Teacher interview school B).

Within the school setting, many teachers reported using the outside space as a behaviour management technique, to help the children feel more relaxed. Additionally, teachers also used this as a break for themselves – they not invulnerable to feeling frustrated and wanting relief:

"And we'll go and just lie down and look at the sky. Mainly because I just want to lie down and look at the sky (laughs) er, but I used to do a lot, I actually used to do it a lot more with my class last year because my class this year are particularly naughty, um, and will start being silly. But that always really seems to bring everyone's energy levels down a bit and just, kind of, gives them a moment."

(Teacher focus group additional school 3)

In one school setting, the Daily Mile was an everyday occurrence, and the teachers were given a lot of autonomy as to when they chose to do this in the school day. This approach appeared to work well, as, teachers could use it to give the children a break from their learning:

"I'd use that as a break for my children, we sometimes do it straight after lunch I'll say, right it's just our lot, we're just together, being together as our class, doing our daily mile or whatever but sometimes I'll do it as a break in the middle of the afternoon. Right, we have done this lesson, right we're going out to do our, our mile where you can walk, run, jog, talk to your friends and then back in and use it as a bit of a break."

(Teacher focus group school C)

A key observation from the field notes, was that when in nature, many children appeared to be in what can be best described as a state of 'flow' which is defined as *"the mental state in which a person performing some activity is fully immersed in a feeling of energised focus"* (Ellis et al., 1994). In these instances, the children demonstrated immersion in their activity, which is another expression of being in an

aware, relaxed state of mind. This was echoed by the views of the children, who appeared to complete tasks on autopilot: *"you feel more connected to nature and sort of forget what has happened"* (child focus group school A). Teachers also enjoyed being in nature, and some found that the experience was as beneficial for them as it was for the children in relation to restoration:

"Yeah, yeah, because when I go in before, and like I, I cycle in, and I go in and I do a safety sweep, obviously, before they come in. And like so it's just me in there, and like sometimes I spot the deer, and it's just, you, all you hear is the birds, and the, and it's just heavenly….And I just sort of think some time, one day I'm just going to get the keys and come here for a weekend."

(Teacher Interview 1 School D)

Having said that - there were some accounts of children feeling very 'unrelaxed' in nature, who were not able to 'let go'. It is important bring to light the fact that for some children, nature is not a place of awe and wonder, but of anxiety, particularly due to concerns about being dirty:

"Some of the other children were digging in the, in the mud. They might not, they probably haven't done any mud kitchen work properly. I mean we haven't got the proper mud kitchen yet, but they were just digging and just to be touching mud and seeing what happens to it is massive. Whereas a lot of children don't go near mud"

*(*Teacher interview 2 additional school 6)

Nature is rich with sensory experiences, and this forms another facet of the interaction between nature and the child. The importance of getting fresh air was mentioned

frequently, as it was felt this helped to awaken the senses of both children and adults alike:

"…just getting that fresh air isn't it – you know yourself as an adult if you are feeling a bit stressed and you go and have a dog walk – even if it's horrible and raining, and you might not be enjoying the actual walking at the time, when you get in you feel fantastic."

(Parent focus group school A)

Children's narratives were littered with comments about heightened smells, and increased chances for tactile and visual experiences: *"Like, you get to breath fresh air you wouldn't breathe inside, and you can pick flowers and smell them*.." (Child focus group school B). Being able to feel physically grounded, through applying body weight, and different pressures, was also reported: *"But once he was there, you know, and they, they were on the tree, and they love the tree, I think the, the feel of the bark and the, you know, putting your weight and the feel of the bark." (Teacher interview school D).* For most children, 'Being Green' *is* sensory play: jumping in the mud, climbing trees, digging the ground, making mud pies – the list is endless – all take place outside and most children will find creative ways to interact with their environment: *"Er, I enjoyed, er, making mud cakes….. Well, I tried, I, I tried to make an Oreo cake and it looked slightly different"* (Child focus group school A). The style of play when children were exposed to nature in the Forest School setting was more 'free range', with children allowed to engage in explorative play. As children grew older, the way they connected with nature in relation to the sensory style of play contrasted with what was widely reported and seen with young children. The older

children were more interested in structured green activities, such as conservation clubs:

"...think we've got, I mean the older ones again, a lot of them are beavers and cubs and they, they're into their, it seems more, as they get older, it's if they're into gardening, whereas when they're younger, they just like getting in the mud and just..."

(Teacher Interview additional school 4)

However, some practitioners who had been running a nature provision for older students, felt strongly that this age group *did* still need to play outside, and were in just as much need, if not more, of nature compared to younger children due to the heavily structured curriculum in Key Stage 2 compared to the loose play structure of EYFS and Key Stage 1:

"Because they don't have that, those opportunities because schools, particularly in Key Stage 2, once you get to Key Stage 2 their opportunities for child led play becomes so, so small -- Year 6 they can, you know, they build me a restaurant out of mud and leaves and like, you know, the teacher's probably horrified thinking, oh my gosh, you know, Year 6 are playing at mud kitchens, ooh, you know, it's brilliant, you know, absolutely brilliant. They need that, they need that brain."

(Teacher Interview additional school 5)

Lastly, references to conservation ran across all children's accounts, regardless of age. This could imply that these concepts are deeply grounded in the child and nature interaction. Children appeared strongly drawn to living things in nature, and this in turn strengthened their nature connection:

"We have 5 bird boxes; I think we actually have 7. We have in our garden, and we have quite a big garden and we have this tree with lots of holes in and bark coming off, there are lots of bugs in there and like we have lots of plants as well. I just get really excited about how much nature we have. We have a hedgehog as well…"

(Child focus group Year 5)

Other interactions were centred on the joy of being around living things, and the opportunities this creates to have adventures in nature: *"…when there's like bugs and you go on an adventure and look for bugs"* (Child Focus Group School A Year 2*)*. Although, some children were nervous around bugs/insects: *"I didn't like the spiders so much because they hide in mud and I, then they left it and then they make more and more. And then I, I tried, then I saw some mud then there weren't any spiders."* (Child focus group school A). However, for some children, being in nature appeared to build confidence with interacting with creatures - *"I don't like bugs much, but I've started to like them a bit more as you can learn about them and the different types and the things that they do."* (Child focus group School A).

The Forest School/gardening club leaders in this study considered it important to develop a strong sense of conservation in the children, and an awareness of the world around them, something many practitioners felt was being lost in contemporary society:

"..or even if you can introduce the children to things like gardening, so they do a little bit, the children have exposure to seeing plants grow and food, so the children can find

out a little bit about where food comes from – I think they are good starting points. I think it's frightening how a lot children have no idea where food comes from…. "

(Teacher Interview Additional school 1)

It was noted that gardening clubs could foster a sense of conservation in the children. Some children reported feeling connected to nature through growing crops at home; in this sense it felt as though they had an appreciation for nature being a 'giving' force:

"I would describe it awpic which is also epic! Because it gives you food and it's nice to animals in your garden which you can see and learn about and its nice having nature all around you. I would also describe it as quite kind because some nature gives you food, worms give you soil and that makes seeds grow to get plants."

(Child Focus Group School A Year 5)

Children were delighted when they managed to grow crops and were so excited to take their produce home and share this with their families. A gardening club leader commented that the process of caring for produce as it grows, offers children the experience to manage expectations, and to accept that growth can take time:

"Yes. I think it's, I think it does help because when they come in and they think, like when we've planted seeds, ah there's nothing growing. I said, well, how long has it been in the ground? It's only been in the ground a week, do you think (inaudible) oh no, oh no, and they haven't thought about that. So, they start off being really disappointed, but then they become more, oh it's OK, they're going to come."

(Teacher interview school 6)

5.1.6 Interactions with the 'self'

In its most basic sense, self-regulation refers to a child's ability to manage their behaviour, emotions, and impulses. To self-regulate, one must be connected to one's own body and mind. As discussed in the literature review, this connection or balance is at the heart of resilience; a dysregulated child will be vulnerable to the negative effects of stress which could cause long term health problems, both physically and mentally. Therefore, any opportunity to strengthen self-regulation in a child has huge potential to enhance developmental outcomes, particularly in 'at risk' children.

The analysis so far has highlighted the many experiences that Being Green provides to strengthen self-regulation in children. Firstly, children have learned, either directly or indirectly, to use the space in nature to help 'regulate' emotions:

"Umm, I think being outside is quite relaxing, because sometimes if you are really stressed it can be like to get some fresh air and it can clear your mind"

(Child Focus Group School A Year 6)

Connecting with nature also enables children to self-regulate by helping them to solve problems and slow down their impulsive reactions. Climbing trees appeared to offer a rich learning ground for children to self-regulate – working out how to get up and down a tree and setting their own limits by understanding their own zones of comfort, whilst focusing on their bodies at the same time. As well as this, the use of sharp tools and fire at Forest School, may also help with self-regulation, as the children are taught how to risk-assess a situation, and to deal with potential danger:

"But then, I mean it's, you know, with a small group we had the secateurs out, and that's another thing actually, when you give them, any of the age group children, and we say, look this is dangerous, you, you've got to listen, they, they all get it as well"

*(*Teacher interview additional school 4)

Children who usually have behavioural issues in the school setting were often reported as appearing more regulated within the nature setting:

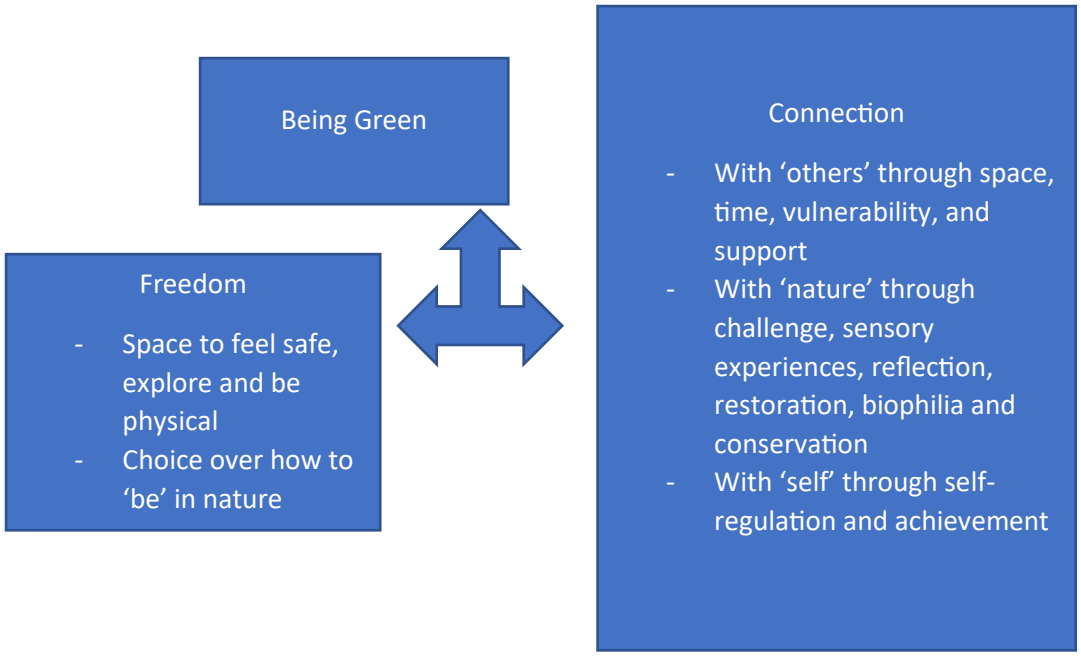
"I taught a little boy, quite a few years back, who would, who was a runner. So he would try and escape school and, um, you had to be very careful of him and, at forest school….It wasn't, um, gated or anything and I just think, ooh, he's going to run off and we'll lose him but he, they, they do understand those boundaries and I think they make their own risk assessment."

*(*Teacher interview School D)

5.1.7 Chapter Summary

Being Green refers to the experience of green provisions for children within the education setting. The theme of Being Green has been broken down into two subthemes, Freedom, and Connection. Figure 8 illustrates the analysis laid out in this chapter, which is reviewed below.

Figure 8 A thematic map of Being Green



Within the concept of 'Freedom', Being Green is seen as providing space for children to feel safe to explore, which increased physicality – thought to be important in relation to a childhood which is typified by many as being largely sedentary. Choice was also important – Being Green enabled a relief from a somewhat micromanaged childhood and an education which was largely entirely structured, with little room for deviation from the curriculum. Differences were observed in the response of the child, and the teacher, to unstructured learning. For some children, choice was unusual and somewhat unsettling. For some teachers, unstructured play was associated with concerns over behaviour management. The experience of Space and Choice was also moderated by the type of green provision the child was exposed to – Forest School was embedded in the ethos of holistic, child led exploration, whereas some other clubs, such as gardening clubs or running clubs, were far more prescript and target orientated.

Being Green was epitomised by interactions with others. Connection here was potentially deepened through the natural terrain providing more space and privacy for

more meaningful exchanges. As well as this, Being Green provided a space away from distractions, allowing for more presence in the moment with others. Being Green provided opportunities for children to be placed outside of their comfort zones, and with this, came increased vulnerability, allowing children to experience the support of teachers and peers. For some children, finding out that they could trust others was truly impactful. Many children behaved in unexpected ways whilst Being Green, and this allowed teachers to see them in a new light. In addition, new friendships were formed, as children were able to reveal new sides of their character to each other, through new experiences and teamwork. Opportunities to develop communication skills further had children interact with others.

Interactions with nature, as part of Being Green, are characterised by challenge, sensory experiences, reflection, and restoration, biophilia and conservation. Taken together, when interacting with nature, challenges can require the child to become physical as they use gross and fine motor skills to master their environment. At the same time, children use spontaneous movement to explore the environment which can help to develop gross motor skills, motivated by a sense of freedom. Enhancing access to this interaction with nature maximises the opportunities for children to be physical, however, more structured programmes may 'dilute' this experience as children are not freely exploring the environment which could lessen the quality of the interaction *with* nature. In short – just *Let them 'Be Green'!*

For children, as for adults, having a connection with nature is grounding and provides opportunities for self-regulation. In some school settings, nature exposure is used as an agonist, to offset the academic demands of school life. Other nature provisions simply

provide a space for children to ‘flow’ and reflect in nature. This connection is embedded in rich sensory experiences, which can evoke a sense of awe and wonder in children. This creates an opportunity, via green provisions, to ‘hijack’ this new biophilic trend to educate the children about the importance of caring for the environment around us, helping to create a future generation of conservationists.

Even so we note the polarity here whereby some children are, due to their living circumstances or familial beliefs about nature as a risk laden environment, mentally and physically disconnected with nature. Greater exposure to green settings has the potential to challenge these attitudes, and by providing opportunities to benefit from ‘Being Green’, increases nature connectedness in the younger generation.

Many children in this study appeared to undergo some kind of transformation when outside, which could be integrated into the classroom. This was largely connected to a sense of pride achieved from stepping outside of their comfort zone. Children increased their confidence outside, and as they learned to trust themselves, and others, they unlocked their true potential. Achievement for some children wasn’t necessarily about mastering their environment outside, for some, it was about mastering their own fears and meeting developmental milestones because of ‘Being Green’. Arguably, ‘Being Green’ allows greater connection to self, through the development of self-regulation - which could be a potential building blocks of resilience. Being Green allows the child to develop a sense of self that is assured, and more able to face adversity through a strengthened understanding of who they are:

"----There has been a shift and it's from, from Forest School and it's, it's like awoken something in him which is really nice"

*(*Teacher interview additional school 5)

Chapter 6

‘Going Green’

The previous chapter discussed the effects of being involved in a GE provision. This chapter aims to examine factors which may serve to strengthen the GE experience, whilst also exploring the experiences of the stakeholders which reveal barriers to embedding GE within the school system. ‘Going Green’ as a theme, refers to the experiences of the day-to-day running of a GE provision in a school, what works, and what presents as a challenge in the education setting context. Within the overarching theme of ‘Going Green’, three subthemes emerged, including:

1. Getting dirty
2. *“It’s just logistics really”.*
3. Deep versus surface level embedment.

Each subtheme will be discussed in turn, culminating in an analysis of how these subthemes may mediate the extent to which GE provisions *can* be successfully embedded in some UK Primary school settings.

6.1 Getting Dirty

Whilst observing GE provisions, it was noted that ‘dirt’ was one of the features of the natural world that was referred to most often. References were mostly made in conjunction with exposure to germs, mud, and bugs. For many, dirt was seen as a negative aspect of the GE experience – this was seen across all types of stakeholders, children, teachers, and parents alike. However, some references to fun, creativity and

learning through exposure to dirt were also made. Here, dirt was viewed as 'all part of the fun' of the GE experience, and the medium through which children were able to explore and learn. Many children really enjoyed 'getting dirty', whilst others viewed 'getting dirty' with trepidation. What follows in this section, is a narrative of 'getting dirty' as both a barrier, and a facilitator of the GE provisions within the school setting. Viewpoints about the 'dirt is bad' ideology will be explored within a societal and cultural framework. Examples of best practice, whereby children were gently encouraged to 'get dirty', and parents were educated about the benefits of this, are also considered.

6.1.1 Children, biophobia and parental attitudes

Biophobia has been defined as a feeling of fear or rejection of natural elements with an adaptive purpose (Ulirch,1993; Orians, 1998). Across many accounts, children were reported as being fearful of dirt; *" Erm, she's worried about getting dirty, just getting dirt on her skin."* (Teacher AS4). In such instances, dirt was constructed as a barrier to GE – the children simply did not want to get dirty, and so could not fully engage in the GE activity. One practitioner explained *"one of the barriers is [being] risk averse to going out and getting dirty and –"* (Teacher interview additional school 2). Another Forest School leader commented that children sometimes had difficulty relaxing into GE activity which could hold a child back in the sessions. *"I think it makes them, they are always worried, always on edge, no worried is the wrong word, they are always aware"* (Teacher Interview School B). Time was invested supporting these children to 'get dirty', and practitioners could achieve this by modelling being muddy. These examples of modelling messy play showed that the child could enjoy this experience, once they overcame their concerns -*"I mean I used to take children to forest school,*

they, at first they didn't want to play with the mud. So, I had to pick up mud, put it all over myself and say look, and then they were in there," (Teacher interview Additional school 2).

One reason for the reluctance to get dirty, may be a lack of familiarity with the natural world, stemming from their usual environment. Many children were not used to being outside in the mud before this GE activity, which created a high level of anxiety for them -*"They're frightened of getting dirty, they're frightened of getting their clothes mucky, they're frightened of touching things, they're frightened of anything new because they've not had these experiences."* (Teacher interview Additional school 2).

Across several teacher accounts, parents were cast as fostering a 'dirt' aversion in their children. There was a parental anxiety, specifically around natural environments and the harm that could come to children through exposure to these settings. Some practitioners held the view that these parents viewed nature as a threatening place, where their children could come to harm. Although these views were disproportionate to the actual threat level, it was also suggested that some parents held exaggerated fear perceptions because of the messages they had received from others, or things they read in the media -*"they might get stung, that they might pick up toxoplasmosis, you know, all these scare things that come out that people hear about, erm, you know, I think all that builds a picture of like it's not safe outside –"* (Teacher interview additional school 5). For these parents, nature was something to be avoided, stemming from a [i]societal norm that seems to equate dirt with danger. This had a negative impact on the GE provisions. One of these impacts is concerned with lack of uptake for Forest School provisions. It was reported that many parents turned down forest school for their child (25% in one setting) and dirt was cited as a reason for this *"…it's because they don't*

want them to go out to the woods because they don't want them to get dirty, they don't want them to get cold." (Teacher interview additional school 5). Parental anxiety also affected the experience for the child within the GE sessions. Parents were sometimes invited to the Forest School sessions to try to address their concerns and increase uptake. However, parents reportedly tried to negatively frame GE, by reminding children continually of the dangers in the setting -*"but parents say, oh we haven't got time, don't touch that, a dog might have wee'd on it, or we haven't got time or…."* (Teacher interview additional school 2).

To try to combat parental fear, some practitioners felt a need to educate the parents around the pedagogical benefits of outdoor learning -*" you know one parent said, oh I don't want him, don't want him to do something with the hands, and I said, those hands are the most important part of a child's body. Those hands give more information than any other part of their body, I said,"* (Teacher interview additional school 2).

However, this practitioner appeared to express frustration, as the message she was trying to portray wasn't readily accepted – "*you know, it just falls on deaf ears and they don't get it, they just don't want them dirty"* (Teacher interview additional school 2). This suggests that parental anxiety around dirt is deep seated, creating a real challenge for practitioners.

Practitioners also reported experiences of parents attempting to put measures in place to control how their child played in the GE session. On one occasion, the parent's concerns over the children being able to manage the rounded glass (which had been

used to infill a play area) in the outside area, led to the entire outside area being sectioned off, so that children were no longer allowed to play there:

"But because a few children picked up the glass and showed their parents, they came to me and said "Ahh – there's glass up there children are picking up the glass and they mustn't go up there!!" and so, it's been sectioned off and we are waiting to have enough money and a working party to get rid of all of it, and it's very, very deep, to lay all the bark, so it hasn't been used for all this time."

(Teacher Focus Group School C)

Upon interviewing parents, some recalled the value of being allowed outside themselves as a child. However, they feared judgement from others if they were to let their children 'out of their sights' in nature, for example -*"I'm very much you have to learn through finding things out, but I would worry about people's perceptions of me, "what are you doing?"* (Parent Focus Group School C.) This highlights a potential conflict for parents in their decision-making process with regards to allowing their child to explore natural environments. Parents may have to weigh up the value of nature for their child, against the implications of being judged as a 'bad parent'.

Aside from the connections of the safety threat, of getting dirty, along with a lack of understanding of the value of exploration through messy play, another perception of parents concerned appearance, and the ruining of clothing through exposure to GE – *"that can be parents that just have got their children who are all dressed up and beautiful, and they, they just want them to look the part, look nice*" (Teacher interview additional school 1). This tells us that dirt may not only be related to danger.

Additionally, they do not want to deal with the extra hassle or cost that comes with messy play, such as having to wash clothes more often or worry about appearances. If the parent also does not recognise the added value of the child being messy in nature, these sorts of meanings are more important.

A solution to this would be for the children to wear suitable outdoor clothing. However, it was also noted that some children arrived at the sessions in inappropriate clothing, perhaps because the parents lacked experience of being in nature with their children:

"I: Do you think it because the parents don't give thought that they children will be outside and so they'll need certain things?

P: well, they had been told, but they don't have these, they don't have things [weather proofing clothing] with their children."

(Teacher interview additional school 1)

In the same way that some parents were seen to influence fears surrounding 'getting dirty', other parents were also seen as promoters of positive nature engagement. Forest School leaders explained how those children who were confident with being in nature were previously exposed to the natural environment: *"I think it varies, massively, as we have some parents who actively take their children out and climb trees and they go walking and are out in nature all the time…"* (Teacher 1 School B). Prior exposure to nature outside of school may therefore support 'Going Green' within the school.

Cultural norms were also seen as a barrier to some children feeling comfortable with dirt and being in nature. One practitioner discussed how children from Afro-Caribbean

backgrounds could be especially anxious to get dirty, as in her experience they had been taught that if they got dirty, they would be in trouble at home. This was because clothes might get dirty, or ruined; the interviewee reported that being in nature was seen as a 'wasteful' activity that could result in parents having to spend more money on new clothes. Typically, the children from such backgrounds were more likely to be from a poorer socio-economic status – where affordability could present a barrier to being able to successfully embed GE provision. Were it not for the fact that in this setting, the teachers recognised this background belief, and ensured they talked this through with the parents beforehand - *"Well I think it's definitely the African Caribbean, like the, the, they hate getting dirty, because they know they're going to get it in the neck, basically, when their parents see them.."* (Teacher interview school D) this child may not have been allowed to access the GE provision.

Some practitioners held the perception that in certain cultures, such as Asian or Afro-Caribbean cultures, being in dirt and nature was synonymous to living in poverty– *"Yeah, the sorts of, I think, erm, some of our, um, our Asian families have issues with mud….Why would you want to do that? We're westernised, we live in towns"* (Teacher interview additional school 5).

However, it was later suggested that this view may not stem from the earlier generations of migrants. In one instance, a family member (Grandma) supported the session and was delighted to share their experiences of growing up in nature in another culture; *"She used to love it because she used to come and sit round the fire with us, and she said this reminds me of my home in Pakistan"* (Teacher interview additional school 5). Taken together, both these examples of cultural differences in the way that

‘Getting Dirty’ is viewed, highlight a need for an awareness of diverse ways of interpreting nature and dirt which may impact the ‘Going Green’ experience.

There were also gender differences reported in ‘Getting Dirty’ in that boys appeared to enjoy getting muddy more so than girls – *“the boys are often rolling around in the mud”* (Teacher interview School A*)*. Some girls, however, also enjoyed being outside ‘Getting Dirty’. Age was another factor; it was thought that as children got older, they tended to prefer gardening, as opposed to getting muddy and exploring insects:

“Again, that’s coming from the very young children, in foundation where again, they’ve got trousers and they want to spend all their time in the mud… but then they lose that instinct when they are in year 6.”

(Parent Focus Group School A).

Alternatively, one Forest School leader argued that this was just one perception, and that the Year 6 children she supported loved being at Forest School as they were allowed to ‘play’:

“Year 6 they can, you know, they build me a restaurant out of mud and leaves and like, you know, the teacher’s probably horrified thinking, oh my gosh, you know, Year 6 are playing at mud kitchens, ooh, you know, it’s brilliant, you know, absolutely brilliant. They need that, they need that brain.”

(Teacher interview 2 additional school 6).

This participant went onto to express her perception (also shared by some other stakeholders) that as children get older, they are expected to focus more on academics as opposed to play, and consequently, the value of 'Getting Dirty' for older children is poorly understood. From scoping out nature provisions across a range of settings, it was observed that most schools ran structured GE provision such as gardening clubs for older children, and Forest School was seen as something that was more for EYFS – Key Stage 1. Settings which used Forest Schools for older children, challenged this view, and saw the value of 'Getting Dirty' across all ages:

"…and what many people have said, is that you're very brave doing it with the Year 5s. It's very much thought of as sort of mum and toddler, or a pre-school thing. But actually, to see how the older children have taken it on board is pretty amazing, and the fact that they just need, they need to play."

(Teacher interview 2 additional school 6).

6.1.2 Practitioners attitudes towards 'getting dirty'

Thus far, 'Getting Dirty' has been examined in relation to the experiences of the fearful child and parent. However, some staff members were depicted as reluctant to 'get dirty' themselves; *"I do know, for some of the staff, it's not their fun day……"*(Teacher interview school D). During an observation of a Forest School session I was surprised to observe that the children were asked to pass around antibacterial gel to end the session. This seemed to almost contradict the whole purpose of the session, which was to expose children to nature, and the risks associated with that. It is interesting, that the 'cleansing' process would be the last thing that the children experienced in the Forest School, and this may stem from the fact that a lot of teachers are also not that familiar

with the natural world, and so this is a new world for them too. It is important to mention that these observations took place before COVID-19 which increased usage of anti-microbial products.

One Forest School practitioner expressed frustration when the staff modelled fear behaviours - *"Um, just I think some staff, and they're lovely ladies, but I just think that whole ugh, spider, does not help, ugh, worm"* (Teacher interview school D). It was noted during an observation, that a child approached a member of staff to show them an insect they had found, and their reactions were very negative. Fear reactions can suggest to children that nature is not safe, a thought echoed by the Forest School leader - *"that upsets me, because children respond to that, like why is this, why is she frightened of them? Well, if she's frightened of them I should be frightened with them, and I don't think that's helpful." (*Teacher interview School D).

However, the trained Forest School Practitioners were pragmatic about this; they knew that some staff were there because they *had* to be, not because they *wanted* to be, and in some instances these staff did try to portray the view that it was okay to 'Get Dirty':

"Yeah, yeah, and I think, I think it would be, in a perfect world it would be wonderful if all the staff were as into it as, because some staff are, don't get me wrong, some staff, you know, and they hide their fear of spiders."

*(*Teacher interview school D).

Despite their aversion to 'Getting Dirty', it appeared that these staff otherwise believed in the value of the Forest School, and so were prepared to put their own fears aside .

Forest School Leaders constructed this as being key tochild reaping all the benefits that exposure to nature has to offer - *"You know, because we're trying for them to embrace them and learn about them. But if you're not even going to go near it, how can you look in the book, or things?"* (Teacher interview school D). Many children loved getting muddy, and appeared to enjoy the sensory experience of being allowed to 'get dirty', particularly if this was something they were normally restricted from doing:

"It had an impact they loved it and they couldn't wait to get outside – you know those children, particularly who never go outside, they loved it, and you know coming back covered in mud and the happiness they sort of felt from that as they just didn't have that chance to do that…".

(Teacher focus group School A)

In the above example, exposure to the natural world and being allowed to be dirty was a joyful experience for these children, who felt free to make a mess and explore in the environment. Other practitioners commented that being in the mud was key for behaviour management for some children, as it enabled them to let off steam; "*but if they've not been able to go and play in the mud, then something will have happened and there will be an incident that I have to sort out" (*Teacher focus group school A). These examples show that some staff believed in the value of nature exploration, as they could see the positive consequences of allowing the children to be exposed to mud, all benefits trained Forest School leaders advocated.

The following thematic map represents the different factors within 'Getting Dirty', the impact this has on 'Going Green' and a potential 'conversion pathway' whereby the

school can be supported to successfully Go Green. It has been placed here as it was felt that this would aid the reader in being able to conceptualise the 'Getting Dirty' subtheme.

Figure 9. A thematic map of 'Going Green' with the subtheme of 'Getting Dirty'.

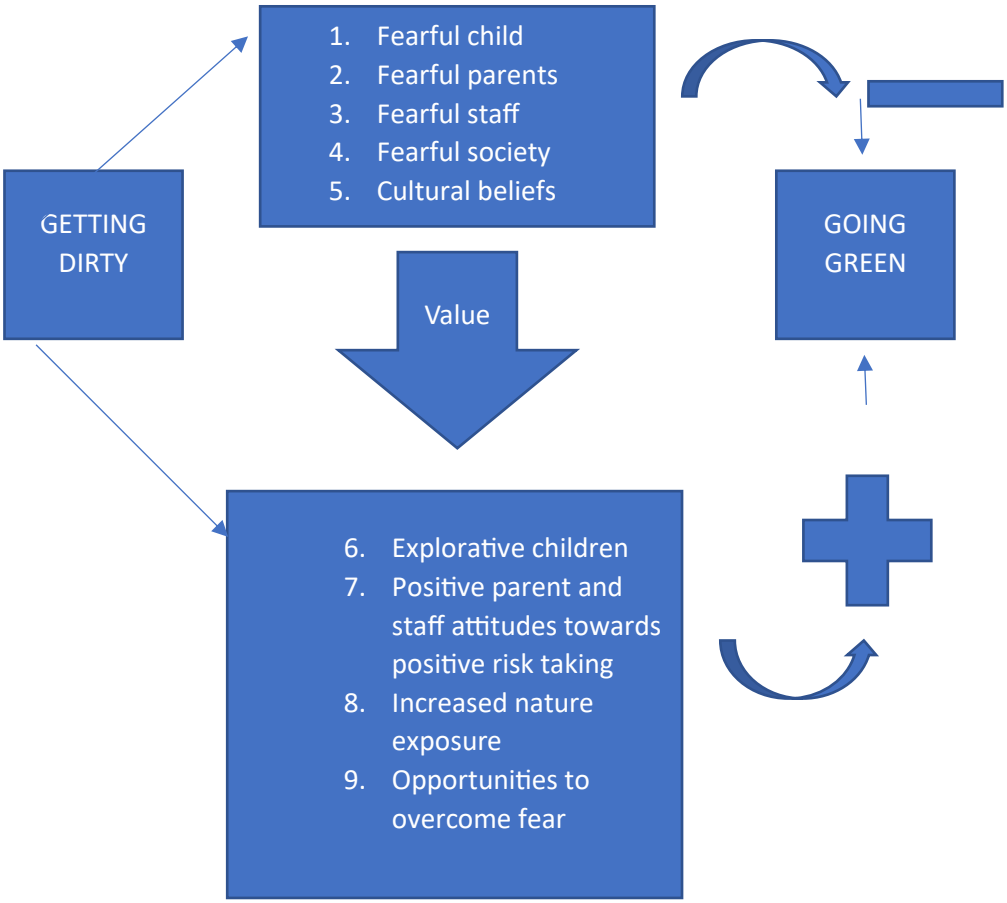


Figure 9 above depicts 'Getting Dirty' as having two strands, the top strand (1-5) 'Getting Dirty' is constructed as a negative experience, which leads to a negative impact for the schools 'Going Green' provision. In the bottom strand (6-9), 'Getting Dirty' is viewed positively, which has an enabling effect on 'Going Green'. Here, 'enabling effect' describes the child's ability to be supported by staff and parents alike to fully engage with the GE provision, as they are not fearful of the environment. Between the two stances, a potential pathway for conversion is given which concerns

'value'. If stakeholders see the value and benefit of 'Getting Dirty', this may enable them to re-cast the experience as positive, which could promote the success of 'Going Green' in the UK primary schools, such as those explored within this thesis. Greater exposure is one way to increase perceived value, muddy modelling and educating parents and staff about the ethos of the GE provision and the importance of allowing children to 'get dirty'. Arguably, by way of conversions about GE, the stakeholders experience of GE may evolve, especially as some have had to overcome certain fears to engage in the session, which has the potential to enhance the benefits of 'Going Green'.

6.2 "It's Just Logistics Really"

This 'in vivo' theme is concerned with the barriers, both practical and systemic, to schools 'Going Green'. Practical barriers included time, and resources such as access to green spaces and training and tools. Systemic barriers included the accountability culture that exists within the education system. This was seen as potentially impacting the sustainability of 'Going Green' within the school setting, and the extent to which provisions are embedded beyond the surface level. In some settings, these barriers were transient, and examples of schools that effectively overcame obstacles will be highlighted below. The section ends with a thematic map of 'it's just logistics really' which I will discuss in relation to the experience of 'Going Green' in UK primary schools.

6.2.1 Making time for GE

Time for 'Going Green' was a commodity that was consistently referred to in interviews as lacking across all settings – *"Time – I would have more time with them*

is the thing I would change." (Teacher School B*)*. Although one school carried out their Forest School provision in Reception class and again in Year 2, and the Junior Joggers running club lasted all year, the standard GE provisions tended to last for around 6 weeks. In such schools, it was felt that the child could not get the most out of the experience – "*….they're not actually getting it until every 4th week, and you aren't able to do it to its' full potential, in something like that as a class teacher" (*Teacher focus group School A). There were negative consequences of time restrictions. For example, a lack of time to continue with the GE provision meant that the full benefits of the programmes were not always realised:

"So, you've, it's got, it can't be just once a week or something like that, it's got to be embraced, it's got a whole school embracing it, so the experience, so you can actually see the progression and their learning and things like that."

(Teacher Interview additional school 2)

This in turn impacted the value that such interventions were seen to have, influencing the amount of time schools were willing to give to 'Going Green'. Access to time for nature also changed as the children grew older. As children moved through their school careers, time for extra provisions like GE became even more restrictive. From the Early Years Foundation Stage, through to Key Stage 1 and Key Stage 2, time for loose play in nature seemed to be reduced in the curriculum, as an emphasis was placed on delivering content in a traditional classroom structure, rather than using nature to facilitate learning - *"The early years have got it nailed and then after then it's lost its way "* (Parent Focus Group School A). Unless a GE intervention was in place in the

school, which children took part in outside of their academic studies, nature exposure did not seem to be considered central to learning in older school children.

Exposure to nature was viewed as being all but removed for children from Key Stage 1, other than at play times, or for outside P.E. Some parents reported that for their children, the lack of nature exposure in the school setting, led to a change of identity as a 'child' in place of now being a 'student':

"It's interesting the boys they reminisce now that their little sister is in Foundation and they are like 'oh I remember when we got to do that, it was so amazing down there you get to play outside all the time, there is games', and it's changed down there now, the focus, I think they are spending less and less time out there now and more time indoors in the classroom…"

(Parent focus group School A)

This restriction in being allowed to freely explore had consequences for some of the children who especially benefitted from sensory, physical experience:

"I remember x going from foundation year 1 and he was almost like oh my god this is it, I have to sit and do all the things I don't want to do anymore, and I just want to go outside and play in the mud"

(Parent focus group School A)

The reason for the lack of time to devote to GE provision was frequently presented as a pressure to get through academic content. This was constructed as a top-down

systemic issue, as teachers believed they were facing mounting pressures to churn through the curriculum which is determined by the Department of Education -*"...but it's the new curriculum and parts of the old, it's very "you have to teach this" all these things to be taught and we are like have we taught that? Have we taught that?"* (Teacher focus group School A). As a result of curriculum pressures with heavy content loads and attainment targets, most teachers were unsure how they would fit GE into their existing timetables, as they had conflicting targets that had to be met. For example, when discussing the 'daily mile' with one practitioner, she felt a key reason for the inconsistency in running a mile outside everyday with her class was time, compounded by the daily mile not being officially timetabled. Consequently, it was often sidelined:

"We sometimes go out and do it, I think some of the problems we have being an expanding school is that for everyone to have time, if you were all were going to do it and it to be free and go outside it would have to be timetabled and it would be difficult but also it takes up time, and so we do sometimes do it and so it's not that often…"

(Teacher interview additional school 1).

A reluctance to create a space on the timetable for GE was linked to a lack of awareness of the academic value of nature exposure, aside from the EYFS where explorative, child-led learning is at the heart of the teaching practice:

"Whereas because of the curriculum that we must teach that then disappears the minute they hit year 2 and year 3. I've been in schools and I've taught in schools where they've tried to take the early years ethos of exploratory learning and phase it through

the school, but it gets to a point where you go 'you know this is lovely and the kids are getting so much from it and it's brilliant, but the thing we are getting judged on is our test results' Unfortunately exploratory play doesn't necessarily give you the test result you need…."

*(*Teacher focus group School C).

6.2.2 Pressure for progress

As well as a pressure to get through core curriculum content, there was also a reported pressure for teachers to show that the children had made progress as part of the 'accountability culture' of the education system, whereby schools are under pressure themselves to ensure their children have met Government dictated targets. Part of this process involved the collation of evidence, which could be shown to Ofsted, evidencing progress in learning.

Parents felt that too much pressure was being placed on them and their children to show students were making progress - *"Yeah, pressure on the teachers and the kid are basically there to show that teachers are doing their job properly (laughs) and I'm sorry, but that's what it is!"* (Parent focus group school A). Pressure to show accountability for academic progress was presented as a barrier to exposing children to GE provisions, as teachers were concerned that they might not be able to 'account' for this learning with evidence, or that this accounting would take up more time -*"... it's harder to justify going out and doing the activity outside, where you feel maybe you won't get the evidence on your book..."* (Teacher focus group school C). One suggestion made in a teacher focus group was to take photos of the children outside in nature, as source evidence, but this too was viewed as time restrictive - *"Yeah, I*

suppose so…you can take a photo and things and then you have to print it off and you haven't got the time to do that…." (Teacher Focus Group School C). Accountability pressure was not the concern of all teachers. Some decided to 'reject the system' and allow students more outside play, even though they didn't have time to document this with evidence:

"Hmm, yeah but I don't do it as much as I am supposed to…so if different people come in I have to justify why my folders aren't full of photos compared to other schools where you know they have a computer package and they just sit there and you know, I chose that our time is better spent with the children"

(Teacher focus group School C)

Further to this, one teacher appeared to 'recommission nature' into the traditional classroom structure, countering the time constraints. This teacher was fortunate enough to have a door which opened to the playground area which was surrounded by fields and nature areas. In this instance, she allowed the students, during difficult tasks, to leave the classroom whenever they felt they needed a 'brain break'. In essence, the teacher was using GE to teach self-regulation skills to the students, which could suggest that 'Going Green' need not be an entirely separate programme. Rather, it could be used as a real time teaching tool to support classroom learning:

"*… some of them are still too immature to be able to sit and write for 40 minutes or half an hour and so it really works for them, most of them take the chance to go outside and I say you can come back in and work and then go back out again, you can regulate*

this yourself….that does work and they just come back in pick up their pencils and carry on."

(Teacher focus group School C)

6.2.3 Access and equipment

Having access to the necessary space or equipment was another barrier to being able to effectively embed GE within a school setting. Some schools were fortunate to have rich green space on their land – "*Erm, apparently we've got one of the biggest, the best collection of trees –" (Teacher interview additional school 6)*, whereas others had limited or no space whatsoever. This highlights a major disparity between school settings - green capital:

"…but our forest school was very different (laughs) it's better now but all we sort of had was a maple tree and we had to sort of move wood to make fire circle and build you know a fence, put all those things there, a lot of children have the opportunity to you know, go to a beautiful forest so it's very different..."

(Teacher focus group School A)

That said, for some green provisions, such as the Junior Jogging club, or the daily mile, all that was needed was a field, and most schools did have access to this. Access tended to be more of an issue for gardening clubs and/or Forest Schools which required a space that could be allocated to the sessions. For gardening clubs, a space where children could grow produce was needed. Provisions varied across settings, one school gardening club consisted of a small patio area which had plant pots and planters for the children to use, and so children were restricted to growing flowers. In other settings,

there was an entire allotment space for the children to access on site. This meant that the children could grow produce such as onions and potatoes.

In circumstances where there was limited or no space to run Forest School provision, this was an extra problem that needed to be solved. However, resourceful practitioners made the best of what they could offer on their site:

"However, (sighs) we do, we are trying, ……..The playground is mainly tarmac with a little bit of grass, but we have got a park area opposite, we have a river going down either side of the school um, using some of that, there are some trees, it's not like a wood, but, that's what we've got, we're using what we have got."

(Teacher interview additional school 1).

In another setting, the Forest School leader used the field, even though there was no 'forest' area. Logs for the children to sit on were stored away, and the children started the session by collecting the logs and rolling them together into the shape of a fire circle. This highlighted that Forest Schools can take place in most settings – there doesn't need to be a wild area for positive learning to take place. Another approach was to use Forest School spaces at external facilities. For example, School D paid to use a space which was about a 20- minute walk for the children. Clearly, this has an impact on the time left for the session, as once the children did arrive at the setting, they also had to walk back to school afterwards. Funding was also an issue attached to external provisions, which meant that some schools chose not to run a Forest School provision, due to affordability -*"90 children in each year group, and every time we went it would be £90 and we just can't afford it and we couldn't quite work out why we*

*would have to pay quite so much – we thought it was extortionate..(*Teacher interview Additional School 1*)*. Some of the equipment used for Forest Schools required the use of specialist tools, such as knives and axes. One practitioner who was in the process of setting up her Forest School stated that:

"I will need to make sure that I've got decent help, that I can concentrate on one or two children, make doing the tools, when I've got the trust of them, so that someone else is, you know other people are watching the children, because you need to be totally focused on ---- What that child is doing with the tool."

(Teacher 2 interview additional school 6).

This could present as a barrier here, as more staff are required to run the session, due to health and safety reasons, which means more time is taken away from classroom teaching. Clothing was a final piece of equipment that prevented full participation in some of the GE provisions. It was reported that despite clear guidance on what the children needed to bring to the Forest School or gardening sessions, many parents failed to provide the necessary waterproof clothing. This created problems, especially if there was wet weather. A common motto amongst the Forest School community is, 'There is no such thing as bad weather – just bad clothing', and practitioners will take the children out in all weather. However, this is dependent on the child having the correct clothing, in the absence of this, teachers are put in a position of conflict:

"So that's another barrier – you think okay I'd like to go outside, and I know its slightly drizzling but I've got a few children who haven't got their coats – am I going to take them outside and they get really wet in their school uniform or do I not go?

What do I do?"

(Teacher interview Additional School 1).

A solution for some settings is to have spare clothes, however, this wasn't practical in all settings which relied on external support to provide clothing – *"I did put out a plea the other year ago in a newsletter for waterproofs, wellies, you know anything you no longer need – please send them in, but – nothing"* (Teacher interview Additional School 1). Lack of awareness from parents as to the necessity of these items seemed to be at the centre of the issue. This was perceived as being a result of not accessing nature with their children regularly, as children who came correctly attired tended to be the ones who played outside at home – *"Yes, they've had the correct, they, they've, you can see they've experienced the outside, they're appropriately dressed."* (Teacher interview Additional School 2)

6.2.4 Practitioner confidence; behaviour management, safety, and training

It was suggested that the level of exposure that a child had to green experiences, was varied, based on the confidence and motivation of the staff. Some staff reported/were reported as lacking confidence in managing the behaviour of the children after they have been outside in nature; there was a concern that it might be difficult to 'contain' the children's energy after GE, which meant the 'pay-off' of allowing the children outside was not worth the post activity challenge:

"Whereas some teachers who aren't quite so confident, and know that they aren't allowed an afternoon break, will perhaps worry about, or who aren't as confident about letting them go out for a quick run and then come back…"

(Teacher focus group School C)

A culture of 'health and safety' had led to resistance from some staff to run GE provisions, due to fear over the risk assessment that would be involved and the time this might take:

"...So that some of our staff can be brave enough to go out and do these things, cos to me, it would be a normal thing to go and do with them, but to them, there's 1000 risk assessments to do, that's a lot of paperwork"

(Teacher interview School B)

Many staff lacked the basic knowledge needed to run eco clubs or gardening clubs, which was thought to be a barrier for one practitioner:

"I think for a lot of people it's confidence or they feel they don't know much about outdoors, if you were identifying flowers, of leaves or plants I think there are some people who think I don't know much about it , um, yeah I think there is quite a bit of that..."

(Teacher interview Additional school 1)

In some instances, having a motivated member of staff who understood the value of nature was considered to have a positive ripple effect on others, which increased the likelihood of schools 'Going Green':

"Motivations, experiences, and confidence maybe, in some year group we have got people who embrace it very much. In year 1 we have got one teacher who is Canadian, and in Canada I believe they do a lot of outdoor learning…. but she's spoken to me about how they are outside a lot of the time, you know, and so she has embraced that a lot of the time and I think she has embraced that in her teaching and has motivated a lot of the other year 1 teachers to do a lot more outside".

(Teacher interview Additional School 1)

A lack of training was cited for one of the reasons why some staff lacked the skill, or willingness to engage in the kinds of risk activities that GE can offer the children: *"Understanding, even in teacher training, understanding what the word risk means, and the benefits of taking a risk. I mean, I don't think teachers are, are taught that are they …"* (Teacher interview additional school 2). Consequently, some staff did not seem to understand the value of allowing children to explore freely in nature. To be a trained Forest School practitioner, money and time are needed: two resources that are often in scarce supply in schools. The cost to train a member of staff is approximately £700, and the training takes at least a year – a big commitment for any school. As a result, where Forest School training was provided, often only one member of staff was funded for the course which restricts the number of children who can access the experience. This could factor into a cost vs benefit analysis of whether it is worth running a GE provision where so few can benefit across the whole school.

Others mentioned how some schools showed reluctance to train staff as Forest School practitioners, as they often moved onto other settings, taking their skill set with them- *"I don't want to speak for her, but maybe some people don't do it is because as soon*

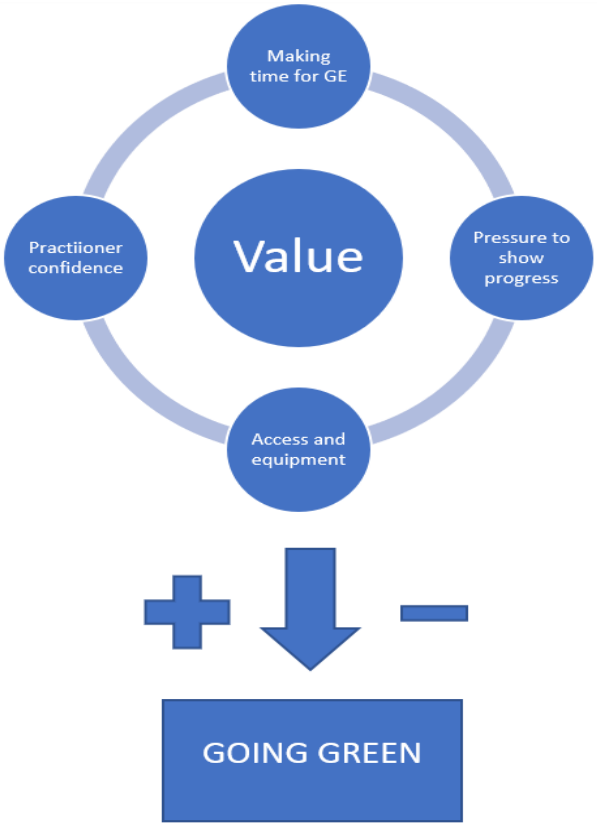
as you've got somebody trained they go and move elsewhere, and you've got nobody else trained" (Teacher interview Additional School 1). This undermines the sustainability and consistency of the programmes, where some year groups get to experience Forest Schools, and others don't. Aside from Forest School training, there appeared to be no other training options to increase the perception of the value of GE amongst staff – *"...even in teacher training, understanding what the word risk means, and the benefits of taking a risk. I mean, I don't think teachers are, are taught that are they...* (Teacher interview additional school 2). Without any training providing awareness of the benefits of allowing children to move in nature, forest school trained practitioners held the perception that many teachers may not understand the true ethos of outside education, which could impact the 'Going Green' experience.

The thematic map below depicts four factors: making time, pressure to make progress, access and equipment, and practitioner confidence, with each directly impacting the 'Going Green' experience, as previously discussed. Whilst there is an interaction between these four factors, this thematic map also introduced the 'lynch pin' of value: Perceived value appears to enhance or reduce the negative impact of logistics when aiming to embed a GE intervention within primary schools.

As outlined in figure 10 below, time given to GE may be reduced because of curriculum and accountability pressures, and a lack of awareness of the value that GE can bring to embedding the curriculum and enhancing academic outcomes, especially for older children. A lack of (equipment) access to green space could be seen as impacting time, as time is needed to journey to spaces/ or set this up. More staff may be needed, which takes time away from classroom learning. If value is not placed on GE, then less

training is provided, which means less staff to provide the necessary support for the session, and less funding to support access to spaces and correct clothing/tools. However, without training, value is lessened. Thus, to increase the successful implementation of 'Going Green' in the school setting, the value of exposure to nature within the education setting needs to be understood. Time may then be given to these activities, as they are seen to enhance academic outcomes, and funding may be given to provide the necessary equipment and training to more staff, strengthening the value attributed to nature, thus building sustainability.

Figure 10 A thematic model to show the impact of logistics and value as a driver of GE interventions within primary schools



6.3 Deep versus surface level embedment

It was noted during the interviews and observations, that very few schools sought a 'deep level' of embedment of GE provision, even though embeddedness was viewed as playing a central role in the development of the quality of the educational experience. Most schools appeared to take a 'surface level' approach, where the GE provision was not necessarily viewed as part of the whole school plan, rather, an additional activity that could also enrichen the curriculum. Such provisions appeared to be part of a box ticking exercise, rather than stemming from a place of wanting to embrace the outdoor education ethos.

6.3.1 Surface level practitioners: Reluctant recruits, Forest School Purists and Goodwill Greeners

Within surface level settings, the task of setting up a GE provision was normally *put on* the teachers (as a directive from the Senior Leadership Team), whose job it was to then work out how to deliver this:

"*I was a teacher that taught forest schools and I was allowed one lesson a week to go out, I had no planning time, how did I build, I didn't even have a forest school, I didn't have a mini bus, I mean how are you expected to sort of build things you don't have, I spent my Easter planting willow!!! (all laugh) I know! It's ridiculous!! But I did because that was the only way we were going to have a forest school is if I was going to build one!"*

(Teacher focus group School A).

This thesis terms these as 'reluctant recruits', who may not actually be fully aware of the value of GE, or, have the skill base to implement the provision with confidence.

‘Reluctant [teacher] recruits’ were often brought to the Forest School sessions because of the child – staff ratio issue, not because they wanted to be there, and it was felt that this too impacted the sessions:

“Barriers that we have had while I’ve been doing it and there are certain, I’ve worked, I’ve worked with a Year 2 member of staff who’s not here, um, at the moment, that she was, I, she was, I don’t want to go near it, I’m not going to just go over there.”

(Teacher interview additional school 4)

Another aspect of a ‘surface level’ approach to ‘Going Green’ was bottom up, whereby a passionate member of staff, either wanted to be, or was, Forest School trained. Defined in this thesis as ‘Forest School Purists’, they believed that exposure to risk in nature allowed the promotion of responsibility in children. Rather than seeing these concepts as something that children needed protecting from, this was viewed as a crucial part of GE, and something worthy of being placed in the education setting:

“You know, how can they be safe with something if you never teach them to use it? I mean you wouldn’t teach a child to cross a road safely by getting them to sit in a classroom, you take them out to the road and you would walk them to it and you show them it?”

(Teacher interview School B).

These individuals could be seen as the ‘trail blazers’ in their settings, who were leading the way, in the hope that the rest of the school would follow in their footsteps. These practitioners fully embraced the ethos of ‘Going Green’, and all were passionate about

exposing children to nature -*"Erm well everyone says it's a massive journey and I suppose, and how it changes your life, and I suppose it does really and it's being allowed to put into practice what you probably believe –"* (Teacher interview additional school 6). Because of this, Forest School Purists were more able to 'let go' of the children in nature, allowing them to freely explore the session*:*

"But I've not laid any boundaries, any, I just said, a few rules, you know you don't go past here, and that's it really, the time's yours and off they go. So, they are actually doing it themselves and the difference, I mean they just come in absolutely buzzing and excited."

(Teacher interview additional school 6)

This was difficult for other non-purist staff, yet Forest School Purists supported these staff to get comfortable with the Forest School ethos - *"and I've got little kind of like laminated kind of thank you for offering to help at a Forest School please do this and please don't do that…."* (Teacher interview additional school 5*).* Forest School Purists were also very resourceful – even with limited access to green space, they aimed to find a way to make their provision work:

"…the playground is mainly tarmac with a little bit of grass, but we have got a park area opposite, we have river going down either side of the school um, using some of that, there are some trees, it's not like a wood, but, that's what we've got, we're using what we have got."

(Teacher interview additional school 5)

Having trained Forest School leaders is a surface-level approach to embedment in some settings, as often that teacher was viewed as 'owning' that area of the curriculum provision, rather than this being a whole school ethos that all educators were able to be part of:

"So that's what, so she did the training in November for a week, bless her. She was outside all the time, all weathers. It was one of the coldest weeks of the year. Erm, and she's going back to do her, and she's doing all her fire and tools…..But part of the part of her work has been setting up this small group…"

(Teacher 1 interview additional school 6).

These teachers also viewed themselves as being responsible for bringing the outdoors into learning – "*Right so my responsibilities are environmental and outdoor learning"* (Teacher interview additional school 1). Because of this some practitioners who advocated for Forest Schools to be brought into the setting, felt an added pressure to show 'results' to prove the worth of the sessions to their leadership:

"So, I've got to show to my school the value to the children and then we need to start to get some more staff trained so we can do some more things to these children so that they are more exposed to these things, not less exposed."

(Teacher interview School B)

Forest School Purists are typified as being high in commitment to exposing children to nature, who often volunteer for the role or approach the Head to fund the training.

However, with this comes a potential barrier - if the trained Forest School leader moves on, the provision can stop:

"I think we wanted to get as many children as possible to have to the opportunity as we could, as we knew in the process that I wasn't going to be here at the end of the year, we knew we wanted to get these two groups of children to have the benefit of at least some forest schools."

(Teacher interview School B)

In the absence of these committed, passionate volunteers, the Forest School provision often stopped. This could present as a barrier as the sustainability of the GE programme isn't assured, and if the school is only taking a 'surface level' approach, they may not be willing to provide additional training to new staff to build capacity for the provision:

"But I believe one the reason x maybe hasn't done it – I don't want to speak for her, but maybe some people don't do it is because as soon as you've got somebody trained they go and move elsewhere, and you've got nobody else trained."

(Teacher focus group School A)

'Good will greeners' are referred to in this thesis as those who volunteer to run additional green provisions. Such individuals ran gardening clubs, running clubs, and often volunteered to support staff for external school trips. These individuals tended to be parents, members of the local community or teaching assistants. One teaching assistant who ran the gardening club stated that she was the type of person who liked to 'muck in', compared to others who wouldn't do anything outside of their job role – *"I've always been a bit of a muck in person.."* (Teacher interview School C), and this

defined many of the 'Good will greeners'. Often 'Good will greeners' had been part of supporting/running the provision for a long time:

"Um since I've been here I've been helping with gardening club most of the time, so I've been helping, not 12 years but probably about nine years I've been helping with the gardening –"

(Teacher interview School C)

Without the support of these people, many of the provisions would not be offered to the children. However, because these GE provisions only ran because of the good will of these individuals, 'Good will greener' provisions can also be part of a surface level embedment of 'Going Green' – when the good will runs out, the provision is stopped.

Several references were made to the successful embedment of green provisions in other countries, who some participants believed took a 'deep level' approach to 'Going Green'. In the following extract, one practitioner reflected on how the UK education system 'takes away' the natural curiosity of children, and this was felt to hinder the implementation of programmes, as UK based children are mostly taught inside -

"I think they are all born with curiosity. Kids are curious. I mean how often do we spend getting frustrated with 3-year-olds because they spend all their time asking "why?" They are curious, they want to know, and if you gave them the space to just explore, who knows? The research that comes out of the initial forest school set ups in Switzerland and Finland is that their nurseries that don't have indoor bases at all they are out all the time, they don't have inside environment at all, they only have outside

to go out in. And actually, their results are phenomenal. How they do it, they don't know. I'd love to go and see, I'd love to go and see it in action, I've only sort of read the research but, it's, we, as an education system take that away"

(Teacher interview School B)

This could explain why in many settings observed, a 'surface level' approach was apparent; the UK education system is based on teaching in an indoor environment, and so any green provision is seen as an 'add on' as opposed to an integral pedagogical approach to educating children.

6.3.2 Going deep

In the UK settings where a 'deep level' approach was emerging, the appreciation value was mentioned as playing an important role:

"Maybe, yeah, I think maybe it is, but um, and I, I think there is that thing with schools now, it's the latest thing, we must tick the box, and, and then it sort of fades, thing. But no, I think this school, we really value it, kind of thing."

(Teacher interview School D)

In this setting, Forest Schools were run at two points for the children, in Reception and Year 2, meaning the children experienced a total of 12 weeks of Forest School. It is noteworthy also that both Reception teachers were Forest School trained, *and* the school had no access on site to green space – they had to walk the children to the provision roughly 20 minutes away. This shows how committed the school was to embedding GE in their setting, which typifies a deeper level approach to 'Going

Green'. When the school leadership team embraced GE, they actively sought a 'deep level' embedment, where the whole school would be able to access the provision – "*And we're going to be introducing it across the school in September"* (Teacher 1 interview additional school 6). One school leader who showed great passion for embedding GE into their school spoke of the process needed to do this, including training, placing GE on the School Development Plan, informing the school business manager of the budget needed, and asking the PTA to help raise money for the training. The extract below shows the details of this conversation:

" P: Yes. I mean, yeah, it's, it's, or it's making it that priority and I think having it as a part of our school development plan this year --

I: Means it's a priority.

P: And, and working with, you know, my school business managers on my SLT (senior leadership team) so she knows exactly what the priorities are.

I: Hmm.

P: So, when people come and ask her for things if they're not on the school development plan she's, why do you need that?

Yeah.

P: Actually, it would be better if they come and, you know, she knows what we're wanting to spend the money on to develop the school.

Hmm, hmm.

P: It's having a priority PTA that are, are behind it and wanting to even see the benefits. Erm, that's made a big difference because they have, they paid for my TA to go on the training."

He also took a pragmatic approach, and recognised that to truly embed GE, time would be needed –

"*...is by having it in that small and that, you know, the fact that we've, we haven't rushed into it. Right. We're doing, forest school's now starting. It's that, right, try it with a group, try it with a couple of year groups. OK, now we're planning for the next year of how it's going to work –"*

(Teacher 1 interview Additional School 6)

He saw this as part of a wider plan for the school, showing the potential for 'deeper level' 'Going Green', where the provision is viewed as part of the whole school ethos, as opposed to an 'add on' – and this could be the key driver for effective GE interventions on schools.

6.4 Chapter summary

This chapter examined contextual factors conceived as contributing to the embedment of green exercise in UK primary schools. Figure 11 depicts the perceived relationships between the subthemes and Going Green. Boxes in red are thought to limit the extent to which schools can truly embed GE into their setting, boxes in green are thought to enhance the likelihood of GE being embedded. Boxes in black have the potential to be moderated based on a surface or deep level approach. Going Green is amber, as this represents a middle ground between 'red' and 'green' boxes – whether the box turns green or red depends on the extent to which value is placed on Going Green at the different tipping points depicted in the model.

Perceptions of nature as 'dirty' and unsafe, acted as a barrier for some children who struggled to fully embrace their time in green settings, and this usually stemmed from an inherited value from parents, culture and/or staff that nature was unsafe. However, when supported by staff who saw the value in 'getting dirty', these children were able

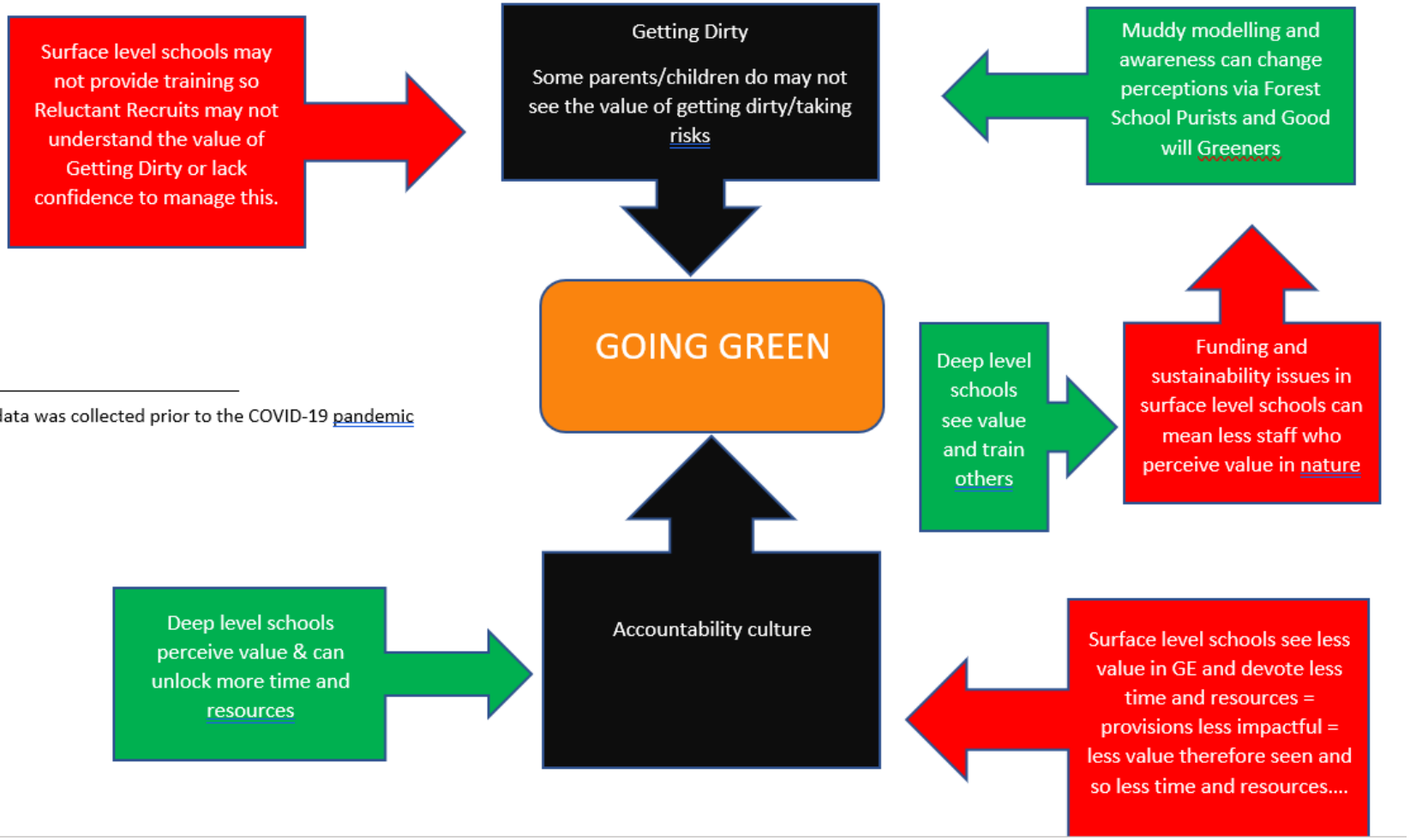
to overcome their fears, creating a positive experience for them. Other children who had been exposed to nature via their families showed willingness to engage in 'getting dirty'. These differences highlight the importance of unpicking the wider contextual settings which a child is exposed to outside the education setting, as these influence the experience of the 'Going Green' provision inside the school.

'It's just logistics' shed insight on how the time devoted to 'Going Green' was largely moderated by competing curriculum demands and an accountability culture, where evidence is needed to show progress, and schools are rated on their SATs test scores. Activities which were not seen as central to these components, were given less time. Resources such as correct clothing were related to the familial setting, where parents who did not understand the value of nature, - who consequently did not expose their children to this usually – often failed to provide the clothing needed, perhaps also due to financial impacts, which influenced 'Going Green'. Variations in access to green capital also impacted 'Going Green', however, schools which saw the value of 'Going Green' sought to access external provisions and were prepared to allocate the necessary funding needed to attend these sessions.

Underpinning the extent to which 'the logistics' were tackled was level of embedment, surface, or deep level. In surface level embedment settings, 'Going Green' was constructed as an 'add on' which tended to rely on the will or skill of Forest School Purists and Good Will Greeners. These provisions tended to be bottom up, with staff approaching leadership to set up provisions themselves. Or, in some instances, Reluctant Recruits were asked to take on a GE project, but lacked the skill and/or will, to do this effectively. Additionally, the school tended to offer limited support in terms

of time allocation/ resources and training to enable the Reluctant Recruits to really embrace the provision. Sustainability was cited as an issue throughout in these settings, due to staff moving on, and a lack reserve support to continue with these provisions. On the other side of the spectrum, deep level embedment schools made time on their curriculum to implement GE and supported staff to train as Forest School leaders (often more than one member). These settings strived to create a whole school approach to 'Going Green'; underneath this motivation seemed to be value. Where the value of GE was understood and embraced by the leadership group, a top-down approach occurred, and schools were truly committed to Going Green.

Figure 11 Thematic map of Going Green



[i] This data was collected prior to the COVID-19 pandemic

Chapter 7

Discussion

7.1 Recap of research objectives

The overall research question for this thesis was:

"How is GE experienced in practice by children and teachers in UK Primary Schools?"

Stemming from this research questions were 4 specific research aims which are as follows:1.To scope out the existing GE provisions in a small number of UK primary schools

2. To explore the varying stakeholder perceptions and experiences of GE

3. To critically examine the context of the education system in relation to the delivery and outcomes of a GE programme.

4. To develop a theory of change that conceptualises change through which GE may enhance resilience to improve mental health, and the influence of context on this.

This thesis makes an original contribution in three areas (1) providing insight into why previous research looking at GE outcomes in children may have mixed results by highlighting the multi-faceted relationship that children have with nature and complexities of delivering interventions in the school context (2) analysing the views of children/parents/teachers/facilitators leading to a rich contextual understanding of the processes which underpin the variances seen in GE in practice in primary schools

(3) the development of a theory of chance model which elucidates *how* GE can be used successfully in education to lead to enhanced resilience for children.

Chapter 4 introduced a contemporary construction 'Childhood.' While the focus within this chapter 4 is not directly on GE, the findings examined were critical to understanding the wider contextual influences prominent in the data, aside from just the school system. Chapter 5 introduced the concept of 'Being Green', which focused on the direct GE experience of existing provisions within the school setting, and perceptions of this for the child and other stakeholders. Chapter 6 moved to an exploration of 'Going Green' in schools, which was novel in that it concentrated on the actual implementation of GE provisions within the education system, with reference to the importance of contextual influences. The combination of the different layers of analysis makes an original contribution to the field of GE, developmental and educational psychology by highlighting what works, for whom, in what context and the mechanisms of change which may underpin this.

This discussion will first review the main findings from chapters 4 – 6. The original contributions that this thesis makes to theory, and existing research will also be discussed. Finally, a framework which conceptualises a theory of change through which GE may enhance resilience, and the influence of context within the education system and beyond, will be elaborated. The chapter will conclude with recommendations for (1) design and implementation of GE interventions in school settings, (2) future researchers within this field and (3) considerations of the limitations of the present study.

7.2 Childhood

My analysis in Chapter 4 showed that children (and their parents) are both living in two worlds – the real and the digital. Contemporary family life is somewhat disconnected, as children focus their energies on navigating their online worlds, which were often conceptualised as 'hidden' from adults. Parents felt as though their children were interacting on platforms which they may know little about, and this was a source of anxiety. Although parents did not want their child to miss out on positive interactions with friends online, at the same time, they feared losing connection with their children.

The parents on the one hand expressed worry about their children's internet use, yet on the other, the parent themselves also relied on their social media.The research which explores the impact of parental social media use and the impact on children is scarce, but some observational studies have found that caregivers can become absorbed in their smartphones in a way that reduces parental responsiveness to their child, including sometimes ignoring children altogether (Hiniker et al., 2015).

Pressure to showcase a 'perfect family life' also seemed to create just the opposite, as my analysis showed that some parents were not especially present 'in the moment', as they were too busy 'cataloguing' this for their social media, and thus a cycle of disconnection was set up.

Within the school setting, the digital world often collided with the real world; online disputes would filter into the classroom, and some teachers reported a worsening in dexterity and concentration span due to excessive online life among children. Coupled with exposure in some instances to overly adult content, teachers all raised concern about the increasingly negative impacts they were seeing in internet usage. The displaced behaviour hypothesis by Baumeister can be used to explain these findings, as it

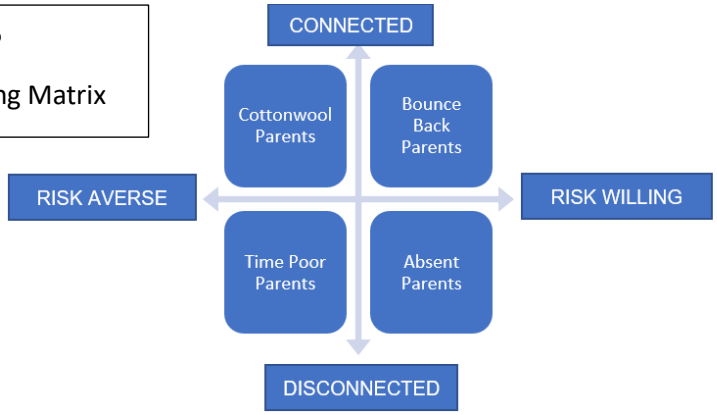
states that in order to cope with stress in a healthy way, individuals may engage in behaviours that may make them feel better in the short term, but ultimately stop them achieving their goals. When the individual has limited self-control, people are more likely to engage in impulsive or self-destructive behaviours (Baumeister et al., 1998). This theory has been used to explain why many adolescents (who typically lack self-control when compared to adults) are engaging in sedentary behaviours, online, as it may bring short-term relief from stress. Nevertheless, it reduces opportunities for in-person connection, putting the user at heightened risk of mental health issues (Berryman 2019). That being said, whilst there appears to be a correlation between social media and depression in adolescents, this finding has been inconsistent in relation to some outcomes, such as time spent online and mental health issues (Khalaf et al., 2023). A recent systematic review of 11 studies focused on social media and depression in adolescents, finding that social media offered benefits and disadvantages to adolescents, (Khalaf et al., 2023). For example, online friends were found to be a source of support for adolescents in the LGBQT community, although it was noted that in-person friendships can be more effective. The use of digital worlds to create friendships is in line with the findings from this thesis, where it was noted that teachers and parents understood that children built on social interactions online through gaming. This review also drew the conclusion that a family media use plan is useful, where families draw up boundaries to strike a balance between online/screen time and alternative activities, promoting digital literacy and open family communication about media usage (Chassioskos et al., 2016). This is very much in line with many of the parental and teacher suggestions arising from this thesis, although this thesis adds to the literature by highlighting the need for support for parents from schools, to help them have these conversations with their children, which could be an area for future research.

The Digital world is an important contextual factor to consider in relation to GE provisions. If children are spending more time online, they are potentially spending less time outside, reducing opportunities for increased PA, real-life connection with others, self-regulation and mastery skills. Potentially this reduces opportunities to build and strengthen resilience, and improve body function and strength. In addition to poorer mental health, children are becoming increasingly sedentary and obese (Detweiller et al., 2022). It seems useful to 'put the nature back' through exposure to GE within the school setting. However, if children are less familiar with being outside, this could feed into negative attitudes about the value of nature, including an increased worry about 'getting dirty'. This adds to Louv's 'Nature Deficit Hypothesis' (2005) which highlighted negative implications for children with a reduced access to nature. The irony here, is that GE has the potential to be an antidote to a childhood which was constructed as reasonably disconnected and stressful in my findings. But, only if children are *allowed* to take risks in nature and to use the space freely (as highlighted in Being Green).

What it means to be a parent also appears to be changing, as seen in Figure 5 - the parenting matrix, included again here to aid understanding.

Figure 5

Parenting Matrix



This thesis identified cottonwool parenting, involving high perceptions of risk, high perception of judgement from others that they are a 'bad parent', and a perception that the child needed to be micromanaged. Previous research has explored the concept of maternal pressure to be 'perfect', highlighting a fear of social penalties when women do not meet the expectations of high motherhood standards (Lis et al 2013b). This can lead to an increase in feelings of guilt, low self-efficacy and higher stress even in women that do not hold intensive mothering beliefs themselves (Borrelli et al., 2017). These findings are very much in line with some of the concerns raised by the parent focus groups, where some parents are worried about letting their children out in nature for fear of being judged and even shamed on social media.

In relation to GE, these parents may be reluctant to allow their child to take risks in nature, reducing the potential effectiveness of the provision for their child, who would potentially serve to benefit the most from being allowed autonomy within nature. Disconnected parents were constructed as either (1) 'time poor' who have a high perception of risk for their child, but limited time to engage with them, or (2) 'absent parents' who do not prioritise connection with their child, and who overestimate the risks that their child should take. It was not as clear from the findings in this thesis how these two parenting styles may interact with GE. However, potentially time-poor parents may spend less time with their child outside, as they have fewer opportunities to do so *and* they may not feel comfortable with placing their child in a 'risky' setting, or one where they could get dirty. This could create a lack of confidence in the child when they are then exposed to nature through GE provisions in the school setting. As exposure to GE was found to increase perceptions of connection with others, this could support the children of time poor parents to create other close attachment systems. For these children, exposure to risk taking in GE could be useful, for

example, a Forest School practitioner can teach the child effective risk assessment strategies, and coping skills for the natural environment which may be lacking if the parent has not developed these with the child. Bounce-back parents typified the type of families who were willing to support their children to take risks (like GE) and had confidence in their own parental values.

Within contemporary literature, parents/caregivers are viewed as a major determinant of children's connectedness to nature, particularly in relation to parental attitudes about exposure to accidents and strangers (Barrable & Booth, 2020; Passmore et al., 2020). This thesis adds to the literature, by closely examining the nuances in parenting styles. To the author's knowledge, this thesis presents the first attempt to theorise how parenting styles may influence the efficacy of GE provisions, important in factoring in familial contextual issues to GE programme success.

The potential impact of the accountability culture on GE provisions has been discussed in relation to a school's ability to include a provision within its curriculum. However, the accountability culture also had an impact on the teachers and the children, who were left feeling as though they were under pressure regarding the curriculum and beyond. Many teachers also felt like underqualified mental health workers. This is very much in line with previous research which states that teachers experience conflict as they are viewed as first responders for children with mental health problems and want to support them (Lowry et al., 2022) , yet there is inconsistent in-service training – only 40% of teachers in the UK feel equipped to support children with their mental health (Smith et al 2016). Children were viewed by parents as being under increasing academic pressure, acting almost as 'pawns' to showcase the effectiveness of a

school, with little regard for their mental wellbeing. This provides a case for GE provisions, as they may offer a break from the high-pressure environment, and many children were reported to let off steam and return more regulated after being allowed to move freely in nature. I argue that exposure to GE could also increase resilience, which could have the potential to buffer against risk factors for poor mental health, such as stress. That said, teachers felt that the demands being placed on them to manage behaviour problems in the classroom, meant they were reluctant to allow the child the freedom to move outside freely, in case, this worsened the situation. This thesis highlights a dissonance between what research suggests about positive improvement in behaviour and teacher concerns and perceptions; an area that this thesis has identified as worthy of further exploration.

Mental health was frequently brought up by parents and teachers, which aligns with existing research which reports increasing mental health problems amongst the younger generation. For example, the UK Parliament released a paper in 2023, titled 'Mental health statistics: prevalence, services and funding in England' which found that 18% of children aged 7-16 had a mental health problem in 2022 (versus 12.1% in 2017). Furthermore, among those aged 17-19, 25.7% of adolescents had a mental health disorder in 2022 (versus 16.9% in 2017). Teachers and parents also believed that technology overuse could be contributing to increased mental health issues, as well as parenting style.

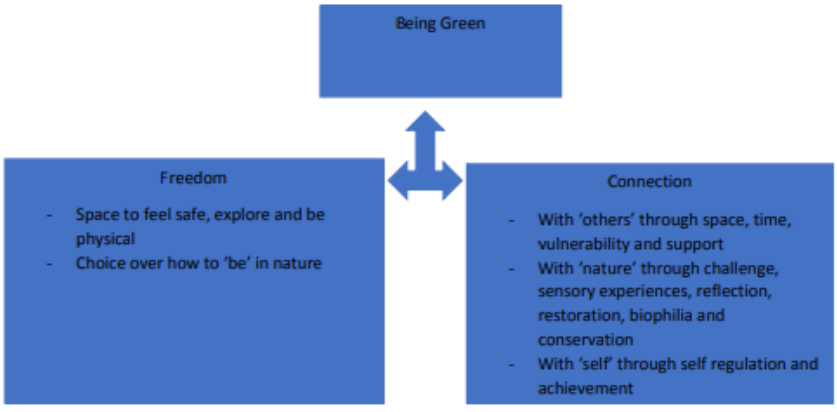
These statistics highlight a benefit of the implementation of GE programmes – as outlined in chapter 6, teachers found these to be very beneficial for children in promoting wellbeing, which could help to improve children's mental health. This

thesis would argue that allowing children to access nature could boost resilience, lessening the needs for the teacher to manage mental health problems which they feel ill equipped to tackle. GE can also provide an antidote to screen time, and a chance for increased physicality and connection – factors which all serve as buffers to mental health disordersPretty et al., 2017. In other words, to tackle many of the problems that are seen to arise in the 'Childhood' theme, we need 'more green, less screen'!

7.3 Contributions from 'Being Green'

Chapter 5 looked at 'Being Green', which in the context of this thesis refers to the activities and outputs that are experienced through green provisions for children within the education setting. The theme of Being Green was broken down into two subthemes, Freedom and Connection, as shown in Figure 8 in chapter 5 and below:

Figure 8 Thematic map of Being Green



Being Green was constructed as providing space outdoors for children to feel safe to explore, and to increase their physicality. Being Green is therefore equated with experiencing 'freedom' aligning it with the findings of Bilton (2002) and Ouvry (2003). I argue that that feeling of being free means that children are naturally more

physically active when in nature due to less concern for accidents which could occur during PA indoors. A recent systematic review suggests that nature stimulates higher levels of PA compared to indoor environments (Valentini & Morosettii 2021); the sensation of being free leads to increased PA. This theme of freedom also supports the work of previous thinkers who state that through connection with nature, children can take part in unstructured play which allows for freedom (Wells & Evans 2003,2006; Bingley & Milligan 2004; Louv 2005).

Given that recent data has shown that almost 10% of 4 – 5 year olds and 20% of 10 - 11 year olds are obese in the UK (NHS, 2019), the Government set a target to reduce obesity in half by 2023. During the COVID-19 restrictions, more challenges arose in finding ways to keep children physically active, and far lower activity rates were reported (Bates et al 2020), with the long-term impact of COVID-19 on current PA levels for children unclear. This thesis postulates that increased PA associated with *Being Green* could therefore serve as a useful intervention for a contemporary childhood, typified by many, as being largely sedentary.

The present study explored the concept of 'Freedom' further, through the theme of 'Choice' whereby Being Green represented some relief from a micromanaged childhood and a highly structured educational experience, with little room for deviation from the curriculum. Children were viewed by those interviewed and through my own observations as being physical when in nature and desiring to let off steam from the classroom environment. Choice was also offered through the way children chose to navigate their experiences of being in nature, with many spontaneous physical actions being observed in this study, such as puddle jumping

and climbing. This links to the concept of agency in nature connectedness which is in line with recent the qualitative findings by Tillman et al., (2019), that children are active in creating their nature connectedness and seek out the area of nature which they believe are of benefit to them.

The importance of executive functioning skills (EFS) was outlined in Chapter 1. As a reminder, these skills include working memory, inhibitory control and cognitive flexibility, and are thought to be important for the development of resilience. These skills are highly predictive of later academic achievement, even when controlling for IQ and maternal education (Zelazo and Carlson 2020). Poor executive functioning itself has been found to mediate the links between low SES and poorer academic attainment (Lawson and Farah 2017). Aside from attainment outcomes, higher EFS have been independently linked to positive long-term outcomes concerning physical health, divorce, wealth, drug abuse, criminal convictions and premature ageing, when controlling for IQ and SES (Richmond-Rakerd et al., 2021). The perceptions of choice and freedom experienced in nature may play a key role in developing EFS. For example, Barker et ak (2014) found that children aged 6-7 who spend more time in less structured activities such as free play versus organised sports, scored higher than peers in an EFS task (verbal fluency). Previous research has also found a link between autonomy supportive parenting and early childhood EFS (Valcan et al., 2018), although this has not necessarily been supported longitudinally. This feeds into the concept of cottonwool childhood in the current thesis, where children are not given as many opportunities for autonomy over their environment. At the same time, too much choice can be overwhelming and inappropriate for the child, which was the argument made with 'absent parenting' in chapter 4. Carlson (2023) presents a new theoretical consideration that repeated experiences for choice from an early age strengthen agency and promote reflection, thus strengthening opportunities to practice EFS, although we do not yet know about the optimal parameters of choice in a given cultural context. In this thesis, it was also argued that the experience of choice and freedom within GE is an important mechanism through which GE

is able to strengthen resilience through enhanced EFS. This shows that the findings from this thesis are contributing to contemporary developmental research.

As previously discussed, Masten (2001) cites mastery motivation as a key adaptive system for resilience. She described it as: *"the motivation to master our environment in ways that promote successful learning and adaption and a sense of self efficacy and a desire for personal agency"* - experiences within the theme of Being Green align with this concept. GE appears to promote personal agency, as the sense of freedom to choose how to navigate their physical bodies allows children to achieve a degree of mastery of their environment. This in turn feeds into the development of self-efficacy - through the theme of heightened 'Connection' children overcome challenges through GE, and a sense of accomplishment is achieved which increases the self-efficacy in the child.

Harden's (2000) work on 'subversion strategies' noted how children use open spaces in ways that appeal to them and previous research has called for wider study of how the different types of green spaces may affect outcomes – the findings from this thesis make a useful contribution, shedding more light on the factors which shape how a child is drawn to the natural world. Differences were observed in the responses of both children and teachers to being allowed to access nature. For some children, choice was unusual and somewhat unsettling. Nature was viewed as less appealing at the beginning, hence these children tended to be more cautious in how they navigated their nature experience. For some teachers on the other hand, unstructured play was associated with concerns over behaviour. 'Space' and 'Choice' were also shaped by the type of green provision to which the child was exposed, for example Forest School was embedded in the ethos of holistic, child-led exploration, whereas some other

clubs, such as gardening clubs or running clubs, were more prescriptive and target orientated. Thomas and Thompson (2004) talked about the importance of children being able to 'claim' wild spaces. Within this literature review, it was suggested that a reason for mixed findings about GE and self-esteem in children could be due to an incongruence between how children *want* to play in nature, versus *how* they are allowed to do so. For instance, Woods's (2014) study did not find any effect on self-esteem levels when children played on the school field versus the playground. Put simply, GE in spaces which are associated with structure, rules and a lack of wild play spaces (such as a school field) do not appear to offer the same benefits that more unstructured spaces which incorporate child-led exploration. For example, within this study Forest Schools were constructed as being more of a 'wild space' and this was where the opportunities for exploration and the potentials for developing resilience resided, and this is likely due to forest school staff being trained in outdoor skills and how to make the outdoor experience more interesting for the children. In comparison, other clubs observed in this thesis such as Junior Joggers appeared to dilute this experience, and so children were less physical and explorative. Whilst these clubs were still an enjoyable experience for the children, and promoted conservation, narratives about these places were less focused on transformation. One reason for this could be the ethos of 'pro-risk' play that underlies forest school provision and is part of the ethos of staff, providing more opportunities for child-led challenge and resilience building. Another reason could the additional benefit of increased PA opportunities in non-diluted GE experiences, where the child is more able to use their body to explore the environment.

One of the issues identified within the literature review concerns the mixed evidence reported in PA levels through GE in rural versus urban environments. Whilst this research did not directly address this specific question in the interviews, observations of GE across different school settings, and narratives from participants, suggest that certain barriers to accessing nature exist. For example, in some urban schools, there was a lot less space within the actual school setting, and students had to be taken to other sites to access activities such as Forest schools, which may have lessened opportunities to be physically active. However, once in nature, most children wanted to explore and be physical, regardless of whether the area was urban or rural. Better indicators of a lack of willingness to explore nature, thus limiting opportunities for PA, were child, parental and staff attitudes.

The use of the Affordance Rich Hypothesis (Gibson 1979) (which states that nature is a source of value-rich ecological resources which animals and humans are drawn to) to explain the benefits of nature could be critiqued here on the basis that the current thesis findings imply that not all nature-based experiences are equally 'affordance rich'- barriers may exist to a child being fully immersed, even when the child is in an affordance rich nature space. There is a deeper level of complexity at play here, and it concerns the contextual basis of the education system and childhood, which as my analysis suggests, moderates the ways in which a child experiences nature. Similarly, my analysis suggests that the Psycho-Physiological Evolutionary Stress Recovery Theory by Ulrich may not be an entirely useful framework from which to understand the benefits of GE on children. As a reminder, this theory states that humans evolved in natural settings and are therefore physiologically and psychologically better adapted to natural rather than urban settings, which may help

stress recovery (Ulrich et al., 1991) Many practitioners did speak about children needing to let off steam and have a break from learning – which nature exposure did facilitate,implying the relevance of this framework. However, some practitioners noted that children were more energetic after being outside due to their increased physicality, which made it more challenging to manage behaviour. Additionally, some children had heightened anxiety in nature, which could imply that cultural beliefs around nature are leading to an incongruence between how we are designed to be in nature from an adaptive perspective, and our attitudes towards nature as being a place of danger, not restoration.

Aside from the benefits of increased physicality linked with greater freedom and choice, Being Green was epitomised by interactions with others. Connection here was potentially deepened through the natural terrain providing more space and privacy for more meaningful exchanges whilst walking and playing together in nature. As well as this, Being Green provided a space away from distractions, allowing for more presence in the moment with others. It was also reported that time to be present with one another was facilitated when accessing natural spaces. Putra et al., (2020) highlight that the benefit of green spaces in relation to pro social behaviour has received less attention. This thesis makes a useful contribution in highlighting *how* GE fosters deeper levels of connection with others.

Connection was also strengthened in instances where children were provided opportunities to move outside of their comfort zones. With this came an increased sense of vulnerability, which allowed children to experience the support of teachers and peers. The importance of vulnerability in forging deeper and more meaningful

connections has been discussed by Brown (2012), who states that this is key in developing meaningful relationships. For some children, finding out that they could trust others was impactful. Many children behaved in unexpected ways whilst 'Being Green' and this allowed teachers to see them in a new light. In addition, new friendships were formed, as children were able to reveal new sides of their character to each other, through new experiences and teamwork. Opportunities to develop communication skills further helped children interact with others. Taken together, the finding that nature fosters connection could indicate another pathway through which resilience is achieved with GE. Masten's (2001) protective factors of supportive relationships highlight the importance of strong social connections in increasing resilience and attachment is named as a key adaptive system. This also ties in with Bronfenbrenner's Ecological system (1979), as by improving peer relations and teacher-child relationships, it is thought the microsystems and mesosystems surrounding the child are strengthened.

Research into the mechanisms behind GE and their associated improvement in social interaction is lacking. This thesis makes an original contribution to the field by demonstrating that it is not just exposure to nature that increases social interaction, rather the increased expression of physicality of the natural (as opposed to the artificial environment) provides space, time and privacy. When coupled with the increased risk associated with physical challenges, it creates a unique environment for the child to develop, including through building relationships with others. Overall, this can strengthen the child's support systems, bolster the attachment system and lead to greater resilience. Interactions with nature, as part of Being Green, are characterised by challenge, sensory experiences, reflection and restoration, biophilia

and conservation. 'Challenge' was experienced as the requirement for the child to become physical as they use gross and fine motor skills to master their environment. At the same time, children use spontaneous movement to explore the environment which can help to develop gross motor skills, motivated by a sense of freedom. Additionally, challenge was constructed as children being allowed to take risks. This again links to Masten's (2001) adaptive system of mastery motivation, further suggesting that GE provisions can foster resilience, which could explain the change that teachers noted seeing in the children, where GE provisions had been transformative, especially for children with SEN needs.

As already suggested, not all experiences of being in nature are equal. Through scoping out the different GE provisions in this thesis, it emerged that more structured programmes risk 'diluting' the opportunity for mastery, motivation and improved social interactions, as children are not as freely exploring the environment, lessening the quality of the interaction with nature and additive benefits. Overall, however, for children and adults, having a connection with nature can be said to be grounding and to provide opportunities for self-regulation. This was particularly evident in the use of the fire circles, a key element of Forest School sessions where children sit on logs around an open fire. Overall, many children reported being more relaxed outside, while in some school settings, teachers noted that exposure to nature was used to offset the academic demands of school life. Other nature-based provisions simply provided a space for children to 'flow' and reflect in nature. This connection was embedded in rich sensory experiences, which could evoke a sense of awe and wonder in children. Green Mind Theory (Pretty et al., 2017), as discussed previously, may apply here, as the restorative experiences of the children reflect the 'green mind'.

Pretty (2017) stated that activities that could lead to a 'green mind' included nature engagements, social engagements or craft engagements. My analysis suggests that GE provisions have the potential to allow children to access all three of these engagements, as by being in nature, children are able to develop stronger social interactions, while Forest Schools in particular also included craft activities.

Green Mind Theory explains how the brain, body and mind is connected to natural and social environments, creating a calming, parasympathetic nervous system response (Pretty, Rogerson & Barton 2017). The authors of Green Mind theory proposed an explicit call to researchers to investigate what green mind interventions work best for children. I argue that an intervention that is based on a more unstructured, explorative framework (such as a Forest School), which does not 'dilute' the child's freedom to explore and take risks in nature, can strengthen the child's ability to access their 'green mind'. This allows for the possibility that using green provisions, to educate children about the importance of caring for the environment around us, can help to create a future generation that are nature loving and conservation minded.

It is also important to note findings about the other end of scale, whereby children whose circumstances or familial beliefs about nature as a risk-laden environment, may be psychologically and physically disconnected from nature. This links to Herbert's (2000) concept of 'generational amnesia about the nature world' and highlights significant barriers that need to be overcome for a child to be able to fully immerse themselves in the benefits of GE. Arola et al., (2023) argues that to understand children's relationship with nature, we also need to explore the negative

aspects too. Chawla (2020) states that children's anxieties about environmental risks and degradation highlights that the nature connection has two facets; a positive and painful one. The findings from this thesis reflect this, but go a step further in linking the contextual element of a micromanaged culture to explain some of the fear of risk, as well as making the argument that painful nature connections can be converted to positive ones through exposure to unstructured explorative GE.

Overall, greater exposure to green settings at school has the potential to challenge negative attitudes and could increase nature connectedness in the younger generation. Many children in this study appeared to undergo a transformation when outside, the effects of which were often brought back into the classroom. Sometimes this was connected to the sense of pride achieved from stepping outside of their familiar comfort zone. My observations of green education suggested that children experienced increased confidence outside, and a sense of accomplishment. This sense of achievement was not necessarily about mastering their environment outside, sometimes it was also about mastering their own fears of the natural world. One can therefore argue that 'Being Green' allows greater connection to self, through the development of self-regulation - which strengthens resilience.

Taken together, these findings indicate a pathway through which green exercise could increase resilience, (mastery, self-regulation and connection), which is referred to in this thesis as 'Green Resilience'. It is not just exposure to nature that produces these effects, but the synergistic benefit of increased opportunity for physical expression which highlights the benefit of GE as a potential intervention that can be used in

school settings to help improve the well-being of children. This is discussed further in section 7.5.

7.4 Contributions from Going Green

Despite the considerable benefits noted above, the context and parameters which surround the implementation of GE provisions within schools create a barrier to most schools embedding recommended GE provisions. This ties into the input and contextual factors, as well as assumptions made within the theory of change model. These findings of Chapter 6, Going Green, are very much in line with the work by Zucca et al., (2023) which explored causal loop diagrams and social network analysis to identify determinants of implementation of outdoor nature-based play in early learning and children centres (ELC). From their analysis, 6 leveraging points were identified for stakeholder consideration- 1) Use of outdoor nature space, 2) ELC culture of outdoor play and learning, 3) Perceived child safety and enjoyment, 4) Culture of being outdoors, 5) Educator confidence, and 6) Educator agency. There are many parallels between the findings from this research and my own. For example, some children were fearful of getting dirty in nature (constructed as a fear of getting messy and/or the fear of dirt leading to germs and illness), a response that at times reflected parental and staff attitudes, based on cultural and societal beliefs about the value and dangers of exposing children to nature. This links to the leverage point of perceived child safety and enjoyment, as well as a culture of being outdoors and educator confidence. My findings appear to confirm that parental anxiety about children being exposed to risk and dirt in society can be passed on to their children. I make an original contribution by identify a new matrix of parenting within contemporary childhood, which I also use to explain how this may mediate the

experience and impact of GE within the school setting. When children were comfortable with 'Getting Dirty', it was because this process was valued and therefore supported by staff and parents, which fed into the children feeling more confident with GE.

Many parents and teachers felt as though children were exposed less to nature as they got older due to more emphasis being placed on academic outcomes, as opposed to general the importance of explorative play. Three centres had created programmes for older children, which were well received by students and parents. This highlights that children do still want to be active in nature as they get older, but the extent to which they are given access to GE very much depends on the culture of the school.

"It's just logistics really" as a theme highlighted the practical and systemic barriers to schools being able to Go Green. Time (that could be devoted to GE) within a heavily packed curriculum was a precious commodity, as programmes were often seen to 'tick the box' rather than be fully embedded as part of the school's learning culture. As a result of this, the needed funding was not necessarily provided to teaching staff resulting in a lack of proper training for staff, which was thought to contribute to a lack of willingness of some staff to engage in the riskier (and arguably more transformative element of GE programmes) activities (defined as 'reluctant recruits'). Where Forest School training was provided, this was not sustainable as the trained practitioner often moved on from the setting, taking their skills with them. At other times, schools relied on the 'will and skill' of the teacher with a special interest and/or volunteers, defined as 'Goodwill Greeners' or 'Forest School Purists' – none of which created a sustainable culture within which to embed a consistent GE

provision. These findings are in line with the interconnected leverage point of 'educator confidence' and 'educator agency'. Research has shown that educator confidence in outdoor pedagogy is a barrier to creating a fully integrated approach (van Dijk-Wesselius et al., 2020).

In general, there is a lack of understanding about well-being differences of children and inequalities across cultural and social backgrounds, and children living in urban or rural areas (Arola 2023; Hatala et al., 2019, 2020; Moula et al., 2021; Wiens et al., 2016, 2019). My research found that the GE provision was affected by access to green areas. Typically, schools in more urban areas had less green access, as the school site was not necessarily suitable for a Forest School provision, and they could not afford to pay for the external provision. This highlights that the GE provisions may be influenced by disadvantage, meaning that some children who could stand to most benefit from the intervention, are not given access to it. More research is needed to unpick the potential relationship between deprivation and the effects of GE interventions.

In Scandinavia, there is top-down endorsement of outdoor education, supported with investment, research and a nature-based education policy (Waite, 2020). Being outdoors is engrained in the culture – this is the embodiment of deep surface embedment. Within this thesis, there was evidence of positive cultural investment within some settings which enabled GE provisions to be fully embedded as part of the school development plan, referred to as a 'deep surface' level embedment. Deep surface embedment schools valued GE and were committed to embedding the programmes as part of their school culture, for example, via Forest School in

Reception and a follow up in Year 2. They also consulted parents on the importance of the programme as part of the school's vision for the children's development. School leaders put GE on their school development plan and had a phased plan for training staff to roll out the GE programme to as many children as possible. However, this was more unusual, and surface level schools very much reflected the cultural norm across education. This is in line with the suggestions made by Hart (2014) and Lendrum & Wigelsowoth (2007/2008) about SEAL programmes; these GE programmes were also seemingly ticking the box and had limited sustainability.

Two recent systematic reviews of green exercise provisions/school-based interventions to support healthy indoor and outdoor environments for children both found only weak to modest evidence of the effectiveness of such provisions, with papers calling for a better understanding of the underlying effects and mechanisms of GE (Fernades et al., 2023; Mnich et al., 2019). One of the mechanisms that has not been adequately considered here is the impact of context (child, parental and staff attitudes, culture and educational systems) which affects the willingness/ability to *truly* embed GE provisions within their school. Neglect of context may have also had a deleterious impact on the status of previous empirical research, which has been rated as weak using the EHPP tool (Mnich et al., 2019), with the true value of such programmes remaining under-investigated. For example, sometimes previous researchers led the intervention themselves, which created an unrealistic intervention – would the intervention be able to continue once the research team has left? Based on the potential influence of an underlying mechanism of school culture identified in this thesis, if researchers had asked teachers to lead the interventions (and they then came in to take measurements), do they know that, owing to the culture of the school,

programme fidelity was possible? This thesis has shown that Forest School provisions which are holistic and based on child led exploration and risk taking are reported by children and teachers as particularly transformative due to the perception of value of GE provisions held by the practitioners. If the researchers were using more 'diluted' methods of GE, this may explain a lack of efficacy. Lastly, this thesis has shown that GE appears to be more complex than PA in nature when it comes to a child population, because of the unique way that children navigate their environment to suit their developmental needs, which could mean different effects are seen across the different types of GE provisions and school site settings.

The question should therefore not be "What is the effect of GE programmes"? Perhaps the more pertinent question should be, (1) "What GE provision works best for *this* school context?" and (2) "*How* can we reduce the barriers to successful implementation for this setting?".

7.5 The development of a conceptual framework; towards a theory of change for GE in primary schools

A conceptual model has been developed from the findings, which explores how GE has the potential to be used effectively within school systems, to bolster resilience and improve mental health in children in consideration of the contextual mechanism surrounding programme delivery The model is called the 'Green Resilience in Primary School's (the GRIPs framework). Figure 13 depicts the framework, which is comprised of 5 potential key factors (green resilience, digital worlds, parenting, educational barriers, educational facilitators) which should be incorporated into the finaltheory of change. A summary for each factor is provided below, along with an

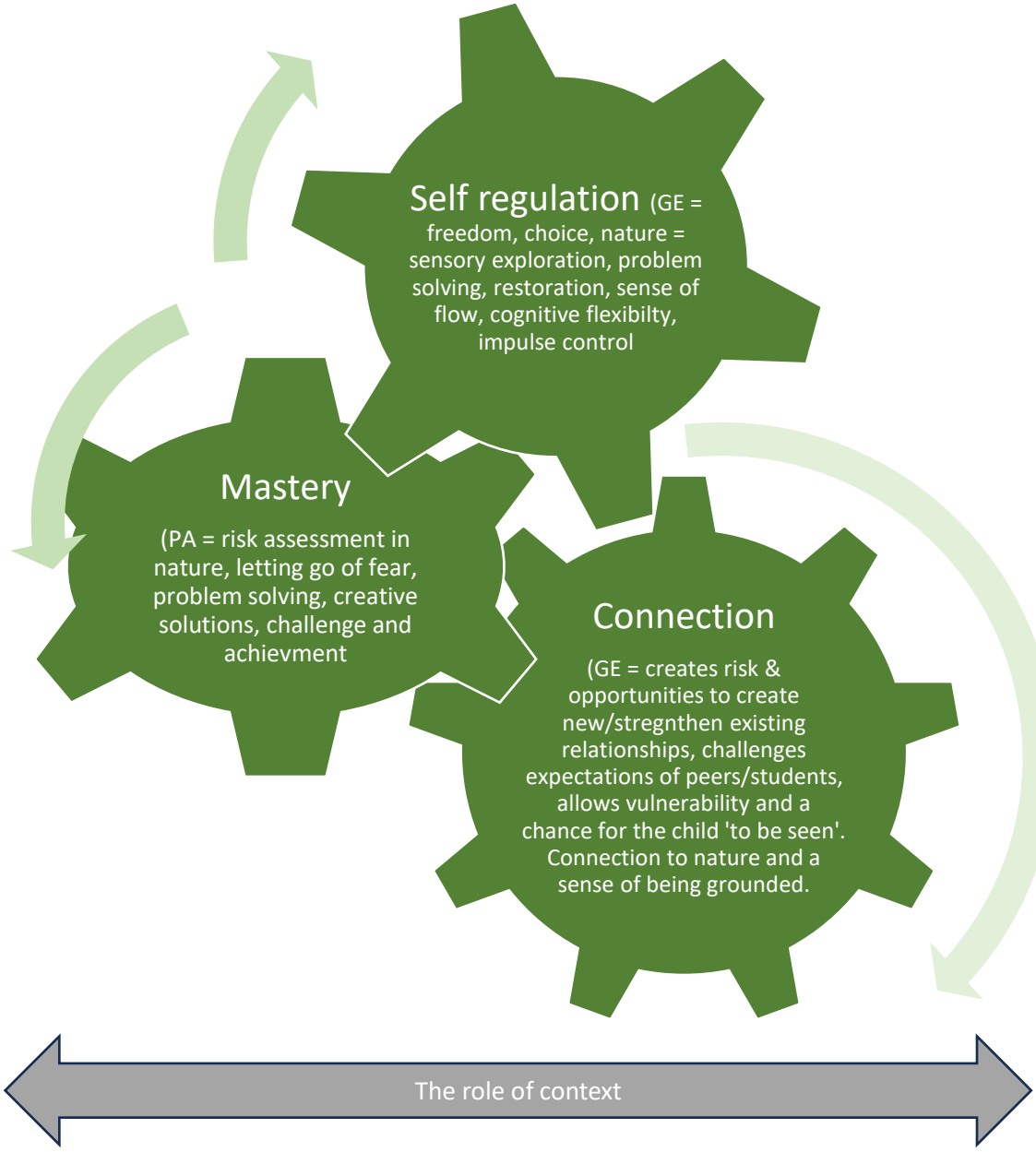
explanation of how each factor may interact with each other to conceptualise change through which GE may enhance resilience, and the influence of context on this. To my knowledge, this thesis is the first to answer the call from a growing number of systematic reviews which state the need to understand the causal relationships between green exercise and early childhood development (Islam, Johnston & Sly 2020) within the UK primary school system.

Green Resilience: An original contribution emerging from this thesis, green resilience refers to the potential for green exercise to strengthen resilience through the synergistic benefits of PA in nature.

Key components

Figure 12 depicts the key components serving as mechanisms which underpin green resilience; self-regulation, connection and mastery. It also provides a more detailed overview of the three different systems involved in creating green resilience.

Figure 12 Green Resilience



Self-regulation

The theme 'Being Green' highlights the opportunities for self-regulation, afforded by GE. Self-regulation is developed through exposure to physical activity in nature, where children have more freedom to make autonomous choices about how to navigate their environment. Owing to the uneven terrain in nature and increased sensory experiences, there are also heightened opportunities for child-centred risk assessment, which requires cognitive flexibility and impulse control. Children can also potentially experience a sense of 'flow'

whilst absorbed in movement in nature, allowing for restoration of the parasympathetic system, promoting a return to Pretty et als., (2017) concept of a 'green mind' (described earlier in this chapter).

Connection

Being green also highlights important opportunities for children to develop meaningful connections through GE in primary schools. GE involves risk taking, and many children in the current study were placed in settings where their vulnerabilities were exposed, for example, climbing trees was new to some children, as were making fires, and handling dirt. As outlined in the Being Green theme, with vulnerabilities comes a chance for connection – as many children needed help from others, fostering opportunities for heightened social connection. This potentially leads to the strengthening of new and/or existing relationships with peers and/or teaching staff, cultivated through the offering support. In turn, this builds trust. Teachers were also able to have their own expectations of the student challenged as they (the student) often achieved more than expected in nature, which allowed the child to be better 'seen' by adults, also strengthening connection. As well as this, many children experienced feeling a grounding to themselves in nature, enhancing connection to self.

Mastery

Through navigating risk in nature, children at times were able to achieve a sense of mastery. In this study, this occurred when children realized they were physically more able than they thought, for example, when climbing trees or managing messy/dirty environments that typically took children out of their comfort zone. Gardening clubs, for example, allowed the children to see progress over time, and this was especially rewarding, leading to a sense of mastery. Making fires or being allowed to handle tools also allowed the children to feel they were able to exert control over their environment.

Synergy

It is important to note that self-regulation, connection and mastery all interact. As depicted in Figure 13, being placed in a controlled risk situation requires self-regulation to problem-solve, and while this may also lead to a feeling of vulnerability, connections can be strengthened. At the same time, through processes like self-regulation and developing connections, the child is able to accomplish some mastery in their environment. Such a sense of accomplishment is potentially motivating, encouraging the child to take more risks, leading to more connections, and further mastery and so forth. The GE experience therefore has potential to create opportunities to develop green resilience, which may be continually reinforced.

The role of context

Throughout this thesis, sensitivity has been shown to ecological thinking as outlined in Bronfenbrenner's Ecological Theory (1979) of child development. This model highlights the importance of context on the development of the child. As part of contextual considerations, this thesis has taken a social justice approach to conceptualizing green resilience, previously defined in chapter 1 as "an overarching critical approach which explicitly takes into account political and economic influences and privileges research and practice co-produced with and alongside communities in adversity" (Hill 2016). Both themes of 'Going Green' and 'Childhood' highlight the political, economic and cultural issues which operate as barriers and facilitators, may shape the green exercise experience, regulating opportunities for green resilience to occur. For example, if a school is unable to fund a sustainable programme, this could lead to inequality, as not all children can access GE and the chance to develop green resilience. Additionally, cultural beliefs that may be embedded in some school systems (e.g. that risk should be avoided), can reduce opportunities for children to problem solve in nature. Familial beliefs that nature is dangerous, and/or financial difficulties in providing the right equipment for their child to partake in GE sessions can also restrict meaningful interactions within nature. By considering that role of context in shaping green resilience, emphasis is

shifted from a sole focus on individual level variables, and consideration in given to the systematic factors that shape child development, which Ungar and Theron (2020) found to be missing from most resilience-based interventions.

Theoretical foundations

It is the position of this thesis that green resilience emerges in ways akin to Masten's (2001) outline of adaptive systems for resilience. Masten argues that resilience is a natural human capacity, that arises from everyday systems of support−such as relationships, community, and basic human adaptational systems Thus, by virtue of green opportunities (created by movement in nature) to promote mastery, self-regulation, and connections, resilience will arise for children as part of their everyday development. These systems can in turn increase opportunities to develop executive functioning skills, which further bolster resilience.

Table 8 shows Masten's (2001) adaptive systems for resilience, which were outlined in Chapter 1 and the key findings from this thesis which demonstrate how GE can 'hijack' these adaptive systems to create green resilience.

Table 8. Adaptive systems for resilience (Masten 2014)

Adaptive System	Description	Intersection with Green Resilience
Attachment	The quality of relationships amongst the primary caregiver, extended family, school relationships, community relationships, peer relations, and any other individual in a care-giving role.	The GE experience fosters connection with peers and school relationships. Volunteers from the community can be developed where they support school provisions. Where parents are invited to attend sessions, this can also build stronger attachments.
Intelligence and problem-solving capabilities	A collection of abilities involving judgement, initiative, and adaptive behaviour (Masten, Burt, 2006; Sattler 1988) acquired through cognitive development.	Children are continually risk assessing when being physical in nature, and this requires problem solving capabilities. For example, a child needs to use judgment to navigate climbing up and down a tree.

Self-regulation	Self-management of attention, arousal, emotions, and actions. Executive functioning, including working memory, inhibitory control, and cognitive flexibility.	Children have to manage their physical and emotional reactions when being physical in nature, as they expose themselves to risk, which requires cognitive flexibility. Also, children can experience restoration in nature through a sense of flow, and this can improve inhibitory control.
Mastery motivation	The motivation to master our environment in ways that promote successful learning and adaption and a sense of 'self-efficacy' and a desire for 'personal agency'.	GE creates many opportunities for children to master their environment, and this motivates them to explore their environments further. This creates mastery motivation. Especially when sessions were less structured and featured more loose play, e.g. forest schools.
Spiritual and cultural belief systems	The human capacity for 'meaning making' during trauma. Optimism, faith, and hope.	Some children who had personal challenges with family, and/or special educational needs were able to find a space to reflect in nature, whilst others were able to challenge stereotypes about their abilities, often demonstrating to parents that there were able to be more independent. This offers hope and optimism for the future. Spiritual systems may have been activated through the state of flow that many children experienced during GE.
Education systems	Effective schools and education systems within which a child is exposed to microsystems (family, teachers, peer groups) mesosystems (interactions between microsystems e.g., parent and teacher communications) and macrosystems (national policies on school systems)	Through GE in education, green resilience can be cultivated through strengthening relationhips between the child, peers, teachers and the wider family, if schools clearly communicate the programme goals to parents and include them in the programme. This may help improve mental health which is a major government agenda. This ties together the micro, meso and macrosystems.
Community systems	Impacts of families, heritage, community values, ethic or national heritage and shared traditions, values, rituals, beliefs.	In some instances, parent and community volunteers joining the GE sessions led to a sharing of cultural stories. Including community systems within GE can further developed the connection element of green resilience.

Practical implications

With increased resilience, children may be buffered against the consequences of everyday adversities, which could otherwise lead to potential mental health problems for some children. This concept of green resilience serves as the underlying mechanisms through which promotion of resilience can be better conceptualised. Having a clear theoretical basis will likely enhance acceptability of GE programmes within the school system. Such theory could also lead to the development of suitable measurable outcomes, which capture self-regulation, connection and mastery, supporting the efficacy measures of school programmes. It was noted in Chapter 1, that most school interventions are not based on any meaningful theory of change – the concept of green resilience directly addresses this gap.

Educational facilitators: Educational facilitators refers to the factors within the education system which promote a deep level embedment of GE provisions, including:

- Resources, training and time given to staff to build sustainability and fidelity to GE programmes.
- Value seen between GE, child development and academic attainment
- Embedment of the GE programme within wider school development plan
- A whole school access approach, which is continued across all key stages
- Supportive staff who are familiar with 'letting go' pedagogy surrounding risk and nature exposure e.g. "that's really good problem solving you are using to get to the top of the tree"

- Supportive parents who supply the correct equipment and who have instilled positive attitudes in their child through exposure to nature (and systems in place to provide equipment for families who may struggle to afford this).
- External supporting volunteers who work alongside the schools GE approach, as opposed to being a 'side line' project

Opportunities to build Green Resilience are more likely to be bolstered in these school settings, because the school is more likely to provide a GE programme that is well thought through, properly resourced and supported by senior leadership and staff.

Educational barriers: Educational barriers refer to a surface level approach to GE, which is characterised by:

- a tick box approach to GE
- Lack of will/skill of staff
- Lack of parent support
- Superficial value of GE
- Getting dirty pedagogy amongst staff, children and parents
- Accountability culture where GE is not seen as adding to educational attainment
- Lack of funding

Taken together, these factors may inhibit the extent to which children can access 'green resilience' as GE programmes are more likely to be diluted, inconsistent, with staff/parents who may be more reluctant to engage in sessions, using 'getting dirty pedagogy' e.g. "be careful!".

Parenting styles: Parenting styles, such as 'bounce back parents' which promote developmentally appropriate risk taking is in line with the deep level embedment approach to GE interventions which value the risky play in nature. This makes it easier for children of these parents to engage in GE with less fear or getting dirty or taking risks in nature. This can feed into educational facilitating factors as parents will be more likely to be supportive of such programmes, helping to further embed the programme within the school.

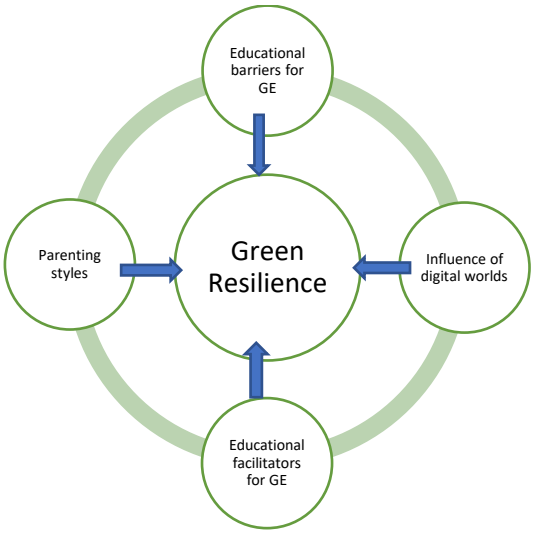
However, parenting styles which micromanage, push-pull or allow age-inappropriate risk taking, may serve to promote educations barriers. This is because children of these parenting styles may be risk averse, scared of getting dirty, and/or unfamiliar with accessing nature. However, practitioners who valued nature felt strongly that education was the best place for these children to learn risk taking skills, meaning that children who have experienced these parenting styles may benefit more from GE exposure, potentially achieving enhanced green resilience.

Digital worlds: Digital worlds can increase the effects of green amnesia as children have more screen time and less green time. This could act as a barrier within the education system as if nature experiences are favoured less than time spent online, this can decrease the child's confidence within nature, making them reluctant to become as involved in the setting.

Overall, parenting styles and digital worlds may also interact directly with green resilience as some children are in greater need of accessing the benefits of green exercise than others and may receive more benefits than those children who regularly

access nature. This could explain some of the mixed findings seen in previous systematic reviews which have explored the efficacy of GE programmes in primary schools.

Figure 13 Green Resilience in Primary School's Framework (GRIPS)



7.6 Recommendations for future GE provisions

Based on the findings from this research and the GRIPs framework which emerged, the following recommendations are made for UK primary schools to enhance the ability of their GE programme to build green resilience, they are depicted in a theory of change model, upon which a GE school-based intervention could be based, as shown in Figure 14 (see below). The contextual mechanisms and assumptions have already been discussed throughout this thesis, as have the evidence for the outcomes

and proposed impact. Below is a narrative for the different input and activities suggestions:

1. School leaders to take a deep surface approach – the GE programme should be seen as integral to the school development plan and there should be objectives that the GE programme is seen to contribute to. This will avoid the 'tick box' approach which tends to lead to a diluted provision.
2. To further achieve this, proper training for staff and resources to educate them on the pedagogy which needs to be used. Forest school training would be optimal. However, this is costly, so a training programme which explains the ethos of these programmes without the need for extensive training would be helpful. This would be strengthened further with evidenced based research which supports the link between GE and academic attainment.
3. Incorporate as much learning outside as possible to not 'tie up' the curriculum – children will run anyway and receive benefits of being outside – train staff for this using existing green curriculum resources e.g. Sue Waite's has produced green curriculum books for every key stage in the UK.
4. Have a lead 'green' teacher in each year group who oversees the consistent implementation of the green curriculum and acts as a source of support for 'reluctant recruit' staff (these could be forest school purists).
5. Run the programme throughout the year, not as a 'add on', but as a core 'green curriculum'.
6. Parents needs to be educated about why this needs to happen and should be given support with suitable clothing etc, and words/phrases to use – lead green teacher

could provide resources/parents talks for this. Cultural barriers and 'getting dirty' ideology can be identified and parents can be supported to overcome these barriers so their child is able to gain 'green resilience'.

7. Run GE programme across all year groups – do not just allow EYFS and Year 1 students access to the programmes, this needs to be accessed by key stage 2 students also.
8. Lessen the need for the teachers to show 'accountability' for what happens in GE lessons; with a clearer understanding of how the programme ties in with the school objectives, teachers are able to have more autonomy to use the GE time to observe and connect with children.
9. Create a space for GE to take place– some simple logs to create a fire circle is really beneficial and may reduce financial implications for schools who may otherwise rely on the good will of external sources,
10. Embed 'Goodwill Greeners' into the GE programme so it is clear how they are contributing as *a part* of the school plan, rather than providing an 'add on' provision which is explicitly linked to the school objectives.

7.6.1 Development of a theory of change model

At the time of writing this thesis, I found one relevant theory of change model, conceptualised as a logic model, by Traynor et al (2022), which provides a framework for understanding and dealing with complex processes in varying settings, which covers inputs, activities, outputs, and outcomes, as well as broader influences, providing a relevant theory of change for the implementation of a nature-based early learning programme. There are many similarities between Traynor's work and mine, particularly in relation to the outcomes, which include, although are not limited to, cognitive outcomes, which overlap with many of the suggestions I make with 'self-regulation and problem solving', physical outcomes such as sleep and gross

motor skills. . Social, emotional and environmental outcomes are referred to in the model, which I refer to as 'connection' in my model. With regards to inputs, the data from my thesis is more centred on changing the whole school ethos around the embedment of GE interventions. It must be noted that my model has not been validated by stakeholders – I have not yet gained feedback on the model and this is an important area for future development. There is a need for further refinement, especially in relation to outputs, where more scoping of a wider range of settings may have added more diversity. In addition, the contextual mechanism of culture also needs to be explored in more depth to ensure the model does not miss any key elements to bring about change for these children too, especially we are to not further widen the health inequality gap. My model also assumes stakeholder buy in, especially at the policy maker level, as some funding would be needed to support the training of staff and parent workshops. This thesis did not include any policy-making representatives, so it is unclear as to what buy-in they would have and the barriers that may also need to be addressed at a systematic level to ensure GE programmes are supported from the top down. Nevertheless, it is hoped that a school leader could use this tool as a guiding principle to aid with the planning and embedment of a GE intervention in their school setting.

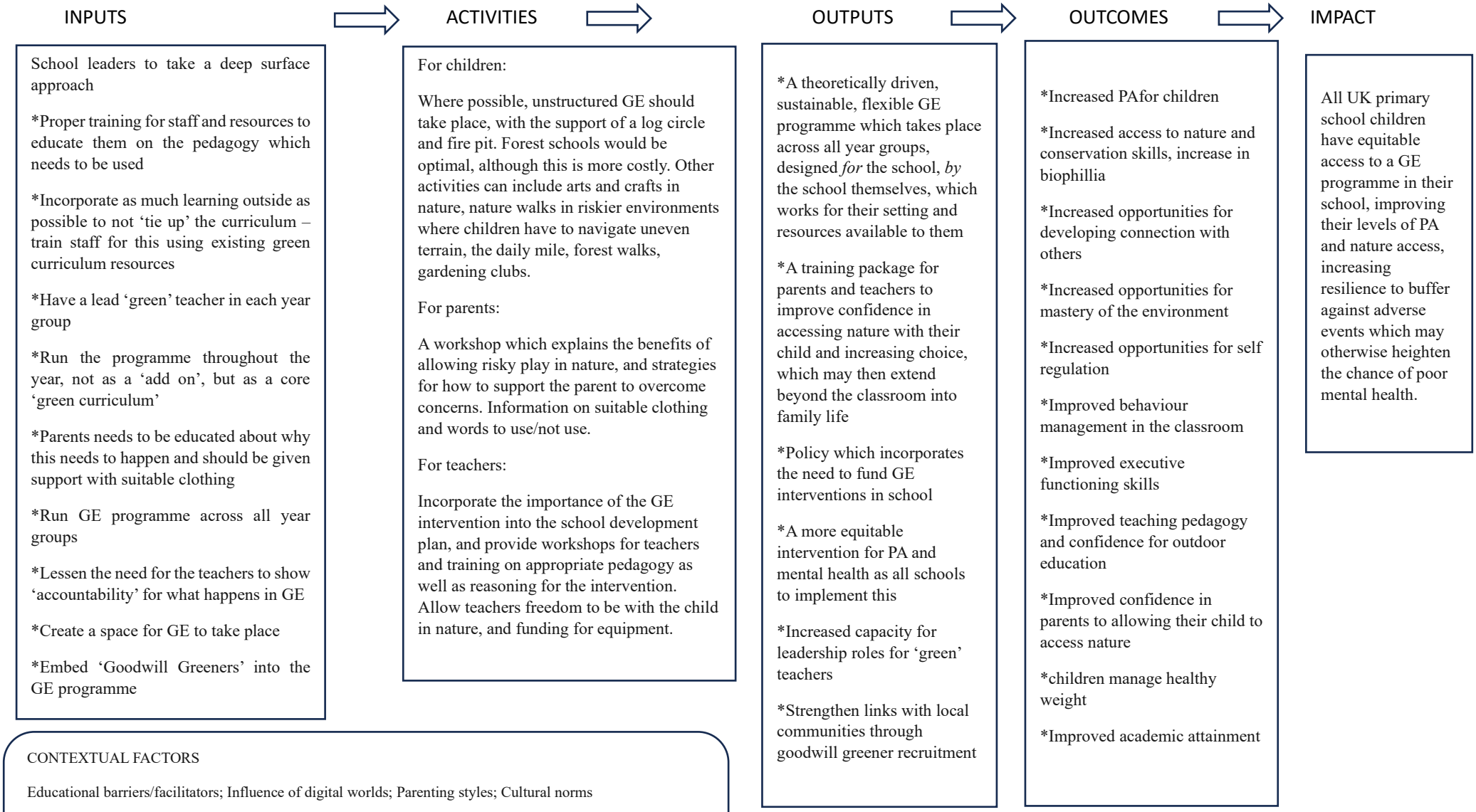


Figure 14

A theory of change model for a GE intervention in UK primary schools

7.7 Limitations

With hindsight, there are several things I would modify in regard to my approach to the topic and the thesis. In the first instance, I would have spent more time exploring a variety of different qualitative methods, including the case study method, before embarking on my data collection. Many of my initial interviews/focus groups contain a lot of information which was not all that relevant to my final research objectives. Specifically I would like to know more about how children feel about their digital worlds and mental health, as currently my data mostly captures the adult viewpoint. I would have wanted to improve my methods in a number of areas. For example, I did not record some important demographic information such as SES information, and so it is not possible for me to know if my findings represent views across varying dimensions like class, making it harder to draw conclusions about inequalities, and how this feeds useful for the younger children, and may have allowed me to understand the GE experience from their world view more effectively. I would also include photovoice methods and a more relaxed focus group setting for the children, playing a game with them whilst they openly talk about their reflections on green exercise, as opposed to direct questioning.

The findings within this study were generated from student, parent and practitioner experiences, within the specific context of a relatively narrow sample of UK primary school settings. Whilst the researcher did try to include settings which offered diversity in terms of location and pupil premium rates, the reliance on data from these school sites is subject to the limitation of transferability (Guba, 1981). To counter this effect, this study adopted a thick description approach throughout the methodology, where school sites and the data collection processes were described in detail. In addition, assumptions I held prior to the data collection process and throughout the analysis were made clear in the reflexive section of the methodology. In addition, my

supervisory team validated the coding process throughout the whole analysis. At one point, it was clear that my own experiences as a mother and educator may have been creating speculation within my analysis – I may have been drawing upon my own experiences a little too much to bridge the gap between the narratives provided by the participants and my interpretation of these. Therefore, this process of validation helped to ensure that any assumptions held were drawn out, which heightened the quality of the analysis. Take together these steps enhance the extent to which the findings from these school sites can be transferred to other research exploring similar contexts.

A potential issue of bias may have occurred during the focus group interviews. Some participants were far more dominant than others, which means not all experiences may have been accounted for. Additionally, there were some instances of power dynamics at play, particularly with the teacher interviews. Some teachers expressed conflict between wanting to support their colleagues whilst being frustrated with the approach of many teaching staff to GE. Additionally, one teacher asked for an extract to be removed which directly referenced her being overwhelmed by stress due to the workload - for fear of judgement - which suggests some discomfort with the topics being discussed. Some of the teachers knew me as a mother of a child at the school and in a green provision, which may have affected their willingness to be entirely honest. Furthermore, as this was a self-selecting sample, there is always the chance that only participants with very strong beliefs (either way) may come forward to share their experiences. Lastly, it was very challenging to gather verbatim from much younger participants due to their level of development. It may have been better to use

journals or ask the children to take photos/draw pictures of what they felt was important to them within the green exercise provision.

Another limitation was time. There was a lack of consistency as to how much of an ethnographic approach was taken at the various sites. For some school sites, I attended sessions across the duration of the whole GE provision, and was very much part of the group, whereas other sessions were observed only a handful of times, and the researcher was not involved within the session. This 'deep dive' versus 'surface level' approach may mean that some of the school sites had more of a thick description than others. However, it was also useful to the analysis to have taken this approach, as there was depth versus breadth trade off which allowed more school provisions to be explored. One of the objectives of this study was to scope out the GE provision across several UK sites, and if a fully ethnographic or case study approach had been taken, less sites would have been included.

This study sought to understand the mechanisms through which GE may contribute to long term resilience. It therefore would have been useful to return to the settings, to follow up on the progress of the children in terms of resilience levels. A mixed method approach may be appropriate in the future, whereby measurements are taken at the start of the GE provision, and again at different time points, to empirically measure whether resilience does improve. However, as GE provisions tended to not be repeated in the school settings, and, given that they are mostly offered to EYFS children, it would be hard to know for sure that any effects on improved resilience over a longer period were indeed due to the GE provision, and not better development of executive functioning as the child ages. Importantly, this study has focused on the

contextual factors which need to be in place in order for a GE to have the *potential* to increase resilience; arguably this is equally, if not more important, and is best researched through the purely qualitative approach taken.

7.8 Future research

It is acknowledged by the author that the GRIPs framework is largely speculative at this point, yet more research within the area of each of the 5 key factors would provide more insight into the validity of it's claims. This could be achieved by conducting more qualitive research into the following areas;

- the influence of parenting styles on the child's experience of GE programmes.
- cultural norms about children accessing nature in school settings
- the influence of digital worlds on the child's experience of GE programmes
- the value of GE from a senior leadership perspective

In addition, future research should consider the development of school training on the topic of GE, green resilience, and how to run effective GE sessions. This could also extend to the development of training for parents also. More empirical evidence is needed which focuses on the relationship between GE and academic attainment; this would be a key driver in promoting a green curriculum. Finally, as was noted in the limitations of this research, the scope of ethnography within this study was not vast, future research could look at a wider variety of GE activities within schools, across a more diverse age group, for a longer time. A mixed methods approach which also employed some outcome measures linked to green resilience may be useful to add further support to the GRIPs model, as would further development of the concept of green resilience as an original construct. Finally, a wider consideration of GE

experience from underserved communities, where levels of PA are lower, and mental health is worse, is essential if we are not to risk widening health inequalities through whole school GE interventions. This would add to the contextual understanding that the GRIPS framework offers, leading to a more robust theory of change overall.

7.9 Conclusion

Education remains a societal pillar to create a solid developmental foundation for children. This has never been more vital, as children today not only recover from the COVID 19 pandemic, they tackle decreasing physicality, alongside an increase in poor mental health and emersion in their highly consumerist online worlds. Family dynamics are changing, and children need the resilience levels to face the inevitable adversities associated with navigating a complex adolescent world. Schools have the potential to provide far more than an impressive academic resume. They *can* and *should* provide an antidote for childhood toxicity through well developed and resourced GE programmes. These need support right from the top – the Department of Education and Ofsted need to grasp that continual systematic objectives to show academic progress via accountability measures is creating a pressure cooker system within which many children and staff alike are unable to flourish.

There is nothing novel about the statement that exercise and nature exposure is good for you. However, this thesis has shown that it is not as easy as simply putting on a GE intervention in a school and expecting it to improve children's mental health. A deeper level of consideration needs to be given to the contextual factors upon which our educational system is hinged to create GE interventions that will have a truly meaningful impact. This thesis has identified a starting point through which a successful GE programme could be conceived within the UK primary school system. The blueprint is there, this thesis now urges the education system to embrace these

suggestions to truly reap the benefits that green exercise can provide for primary school children in the UK.

REFERENCES

1. Abma, T. A., & Widdershoven, G. A. (2011). Evaluation as a relationally responsible practice. *Handbook for Qualitative Inquiry. Los Angeles: SAGE Publications Ltd*, 669-80.

2. Abramson, D., Park, Y., Stehling-Ariza, T., & Redlener, I. (2017). *Children as Bellwethers of Recovery: Dysfunctional Systems and the Effects of Parents, Households, and Neighborhoods on Serious Emotional Disturbance in Children After Hurricane Katrina*.

3. Akers, A., Barton, J., Cossey, R., Gainsford, P., Griffin, M., & Micklewright, D. (2012). Visual color perception in green exercise: Positive effects on mood and perceived exertion. *Environmental science & technology*, *46*(16), 8661-8666.

4. Al-Nuaim, A. A., Al-Nakeeb, Y., Lyons, M., Al-Hazzaa, H. M., Nevill, A., Collins, P., & Duncan, M. J. (2012). The prevalence of PAand sedentary behaviours relative to obesity among adolescents from Al-Ahsa, Saudi Arabia: rural versus urban variations. *Journal of nutrition and metabolism*, *2012*.

5. American College of Sports Medicine. (2013). *ACSM's guidelines for exercise testing and prescription*. Lippincott Williams & Wilkins.

6. Amit, V. (Ed.). (2000). *Constructing the field: Ethnographic fieldwork in the contemporary world*. Routledge.

7. Annerstedt, M., & Währborg, P. (2011). Nature-assisted therapy: Systematic review of controlled and observational studies. *Scandinavian journal of public health*, *39*(4), 371-388.

8. Arola, T., Aulake, M., Ott, A., Lindholm, M., Kouvonen, P., Virtanen, P., & Paloniemi, R. (2023). The impacts of nature connectedness on children's well-being: Systematic literature review. *Journal of Environmental Psychology*, *85*,

9. Assoication for Young People's Health (2016) A public health approach to promoting young people's resilience. Retrieved Online on 24th September 2018 from http://www.youngpeopleshealth.org.uk/wp-content/uploads/2016/03/resilience-resource-15-march-version.pdf

10. Babyak, M., Blumenthal, J. A., Herman, S., Khatri, P., Doraiswamy, M., Moore, K., ... & Krishnan, K. R. (2000). Exercise treatment for major depression: maintenance of therapeutic benefit at 10 months. *Psychosomatic medicine*, *62*(5), 633-638.

11. Barrable, A., & Booth, D. (2020). Increasing nature connection in children: A mini review of interventions. *Frontiers in Psychology*, *11*.

12. Barbour, A. C. (1999). The impact of playground design on the play behaviors of children with differing levels of physical competence. *Early Childhood Research Quarterly*, *14*(1), 75-98.

13. Barton, J., Hine, R., & Pretty, J. (2009). The health benefits of walking in greenspaces of high natural and heritage value. *Journal of Integrative Environmental Sciences*, *6*(4), 261-278.

14. Barton, J., & Pretty, J. (2010). What is the best dose of nature and green exercise for improving mental health? A multi-study analysis. *Environmental science & technology*, *44*(10), 3947-3955.

15. Barton, J., Sandercock, G., Pretty, J., & Wood, C. (2015). The effect of playground-and nature-based playtime interventions on PAand self-esteem in UK school children. *International journal of environmental health research*, *25*(2), 196-206.

16. Barton, J., Bragg, R., Wood, C., & Pretty, J. (Eds.). (2016). *Green exercise: Linking nature, health and well-being*. Routledge.

17. Bates, A. E., Primack, R. B., Biggar, B. S., Bird, T. J., Clinton, M. E., Command, R. J., Richards, C., Shellard, M., Geraldi, N. R., Vergara, V., Acevedo-Charry, O., Colón-Piñeiro, Z., Ocampo, D., Ocampo-Peñuela, N., Sánchez-Clavijo, L. M., Adamescu, C. M., Cheval, S., Racoviceanu, T., Adams, M. D., … Duarte,

C. M. (2021). Global covid-19 lockdown highlights humans as both threats and custodians of the environment. *Biological Conservation, 263,* 1

18. Bateson, P. (2005). The role of play in the evolution of great apes and humans. *The nature of play: Great apes and humans*, *1324*.

19. Barkley, R. A. (2006). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (3rd ed.). New York: Guilford.

20. Bentsen P, Mygind L, Elsborg P, Nielsen G, Mygind E. (2022) Education outside the classroom as upstream school health promotion: 'adding-in' PAinto children's everyday life and settings. *Scandinavian Journal of Public Health*.50(3)

21. Betancourt TS, Khan KT. (2008) The mental health of children affected by armed conflict: protective processes and pathways to resilience. *Int Rev Psychiatry*. 20(3):317-28.

22. Bhaskar, R. (1978). On the possibility of social scientific knowledge and the limits of naturalism. *Journal for the Theory of Social Behaviour*, *8*(1), 1-28.

23. Beil, K., & Hanes, D. (2013). The influence of urban natural and built environments on physiological and psychological measures of stress—A pilot study. *International Journal of Environmental Research and Public Health*, *10*(4), 1250-1267.

24. Berg, M., Medrich, E., A., (1980) 'Children in four neighbourhoods: the physical environment and its effect on play and play patterns', *Environment and Behaviour, 12* (3), pp. 320 – 348

25. Berger, P., & Luckman, T. (1966). *The Social Construction of Reality*. Middlesex: Penguin Books Ltd.

26. Bingley, A., & Milligan, C. (2007). 'Sandplay, Clay and Sticks': Multi-sensory research methods to explore the long-term mental health effects of childhood play experience. *Children's Geographies*, *5*(3), 283-296.

27. Bird, W. (2007). *Natural thinking*. Royal Society for the Protection of Birds.

28. Bowers, M. E., & Yehuda, R. (2020). Intergenerational transmission of stress vulnerability and resilience. *Stress Resilience*, 257–267.

29. Bragg, R., Wood, C., Barton, J., & Pretty, J. (2012). Let Nature Feed Your Senses: Engaging people with nature, food and farming. *ESI and LEAF, Stonleigh*.

30. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

31. Breuer E, De Silva M, Lund C. (2018) Theory of change for complex mental health interventions: 10 lessons from the programme for improving mental healthcare. Glob Ment Health (Camb).

32. Briggs, C. L. (1986). *Learning how to ask: A sociolinguistic appraisal of the role of the interview in social science research* (Vol. 1). Cambridge University Press.

33. Brewer, J. (2000). *Ethnography*. McGraw-Hill Education (UK).

34. Bronfenbrenner, U. (1979). *The ecology of human development*. Harvard university press.

35. Bronfenbrenner, U., & Morris, P. A. (1998). *The ecology of developmental processes*

36. Brown, B. (2012). *Power of vulnerability: Teachings on authenticity, connection, and courage*. Sounds True, Incorporated.

37. Brown, D. K., Barton, J. L., Pretty, J., & Gladwell, V. F. (2014). Walks4Work: Assessing the role of the natural environment in a workplace PAintervention. *Scandinavian journal of work, environment & health*, 390-399

38. Bundy, A. C., Naughton, G., Tranter, P., Wyver, S., Baur, L., Schiller, W., ... & Niehues, A. (2011). The Sydney playground project: popping the bubblewrap-unleashing the power of play: a cluster randomized controlled trial of a primary school playground-based intervention aiming to increase children's PAand social skills. *BMC public health*, *11*(1), 680.

39. Carek, P. J., Laibstain, S. E., & Carek, S. M. (2011). Exercise for the treatment of depression and anxiety. *The International Journal of Psychiatry in Medicine*, *41*(1), 15-28.

40. Cambridge Dictionary PHUBBING. Accessed online 24 April 2024 at: https://dictionary.cambridge.org/dictionary/english/phubbing (accessed on 11 November 2023).

41. Capaldi, Colin & Passmore, Holli-Anne & Nisbet, Elizabeth & Zelenski, John & Dopko, Raelyne. (2015). Flourishing in nature: A review of the benefits of connecting with nature and its application as a wellbeing intervention. *International Journal of Wellbeing*. in press.

42. Centre for research on environment, society and health (2012) *Regular PAin natural environments halves risk of poor mental health*: http://cresh.org.uk/2012/06/20/regular-physical-activity-in-natural-environments-halvesrisk-of-poor-mental-health/

43. Chambers, E. (2000). Applied ethnography. *Handbook of qualitative research*, *2*, 851-869.

44. Chang, Y. T., Chen, Y. C., Wu, C. W., Yu, L., Chen, H. I., Jen, C. J., & Kuo, Y. M. (2008). Glucocorticoid signaling and exercise-induced downregulation of the mineralocorticoid receptor in the induction of adult mouse dentate neurogenesis by treadmill running. *Psychoneuroendocrinology*, *33*(9), 1173-1182.

45. Chawla, L., Keena., K., Pevec, I., Stanely., E. (2014) Green schoolyads a havens from stress and resources for resilience in childhoos an adolescence *Health & Place* 28, 1 – 13

46. Chawla, L. (2020). Childhood nature connection and constructive hope: A review of research on connecting with nature and coping with environmental loss. *People and Nature*, *2*(3), 619–642.

47. Chicchetti, D. (2013) Annual research review: Resilient functioning in maltreated children, past, present and future perspectives. *Journal of Child Psychology and Psychiatry* , 54, 402 – 422

48. Chief Medical Officer (2004) *At least five a week: Evidence on the impact of PAand its relationship to health:* http://webarchive.nationalarchives.gov.uk/20130107105354/http:/www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4080981.pdf

49. Children's Commissioner for England report (2024) accessed online April 24th 2024 at: Annual report 2022-23 | Children's Commissioner for England (childrenscommissioner.gov.uk)

50. Children looked after in England including adoptions Accessed online 23rd May 2024 at: Children looked after in England including adoptions, Reporting year 2023 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk) accessed

51. Chotpitayasunondh, V.; Douglas, K.M. (2016) How "phubbing" becomes the norm: The antecedents and consequences of snubbing via smarthphone. *Comput. Hum. Behav.* 63, 9–18.

52. Clow, A., & Edmunds, S. (2014). *PAand mental health*. Human Kinetics.

53. Cotman, C. W., & Berchtold, N. C. (2002). Exercise: a behavioural intervention to enhance brain health and plasticity. *Trends in neurosciences*, *25*(6), 295-301.

54. Cotman, C. W., Berchtold, N. C., & Christie, L. A. (2007). Exercise builds brain health: key roles of growth factor cascades and inflammation. *Trends in neurosciences*, *30*(9), 464-472.

55. Connell and Kubisch (1998) Accessed online 8th March 2024 at: Applying a Theory of Change Approach to the Evaluation of Comprehensive Community Initiatives | Education Links (edu-links.org)

56. Crenshaw, Kimberle (1989) "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics," University of Chicago Legal Forum: Vol. Iss. 1, Article 8.

57. Cunningham, C., Jones, M., Barlow, M., (1996) Town Planning and Children, (Armidale: University of New England)

58. D'AMORE, C., Charles, C., & Louv, R. (2015). Thriving Through Nature: Fostering Children's Executive Function Skills. *Children & Nature Network*.

59. D Darlaston-Jones., (2007) Making connections: The relationship between epistemology and research methods *The Australian Community Psychologist 19* (1) 19-27

60. Department of Education and Skills. (1997). Excellence for all children: Meeting special educational needs—Green Paper. HMSO.

61. Department of Education (2017) *Schools and their characteristics* Accessed Online 26th September 2018 at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/650547/SFR28_2017_Main_Text.pdf

62. Derr, V. (2002). Children's sense of place in northern New Mexico. *Journal of Environmental Psychology*, *22*(1-2), 125-137.

63. Dettweiler, U., Gerchen, M., Mall, C., Simon, P., & Kirsch, P. (2022). Choice matters: Pupils' stress regulation, brain development and brain function in an outdoor education project. *British Journal of Educational Psychology*, *93*(S1), 152–173.

64. Dietrich, A. (2006). Transient hypofrontality as a mechanism for the psychological effects of exercise. *Psychiatry research*, *145*(1), 79-83.

65. Dilthey, W. (1991). *Introduction to the human sciences* (Vol. 1). Princeton University Press.

66. Domitrovich, C. E., Ialongo, N., Embry, D., & Green berg, M.T. (2008) Integrating two evidence-based interventions: The PATHS to PAX program. *Paper presentation at the Society for Prevention Research*, San Fransisco, CA

67. Dube SR, Anda RF, Felitti VJ, Chapman DP, Williamson DF, Giles WH. (2001) Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: findings from the Adverse Childhood Experiences Study. *JAMA.* 286(24):3089-96.

68. Dyment, J. E., & Bell, A. C. (2008). 'Our garden is colour blind, inclusive and warm': reflections on green school grounds and social inclusion. *International Journal of Inclusive Education*, *12*(2), 169-183.

69. Ekstrand, J., Hellsten, J., & Tingström, A. (2008). Environmental enrichment, exercise and corticosterone affect endothelial cell proliferation in adult rat hippocampus and prefrontal cortex. *Neuroscience letters*, *442*(3), 203-207.

70. Elsley, S., (2004) 'Children's experience of public space', *Childhood and Society, 18,* pp. 155 – 164

71. Epstein, L. H., Raja, S., Gold, S. S., Paluch, R. A., Pak, Y., & Roemmich, J. N. (2006). Reducing sedentary behaviour: the relationship between park area and the PAof youth. *Psychological science*, *17*(8), 654-659.

72. Evans, G. W. (2006). Child development and the physical environment. *Annu. Rev. Psychol.*, *57*, 423-451.

73. Fernandes A, Ubalde-López M, Yang TC, McEachan RRC, Rashid R, Maitre L, Nieuwenhuijsen MJ, Vrijheid M. (2023)School-Based Interventions to Support Healthy Indoor and Outdoor Environments for Children: A Systematic Review. *Int J Environ Res Public Health*. 18;20(3):1746.

74. Fetterman, D. M. (1984). Doing ethnographic educational evaluation. *Ethnography in educational evaluation*, 13-20.

75. Fetterman, D. M. (1989). *Ethnography. Step by Step. Applied Social Research Methods Series*. Sage.

76. Fieldhouse, J., & Sempik, J. (2014). Green care and occupational therapy. *Creek's occupational therapy in mental health. 5th ed. Edinburgh: Churchill Livingstone, Elsevier*.

77. Fjortoft, I., (2001) 'The Natural Environment as a Playground for Children: the impact of outdoor play activities in pre-primary school children', *Early Childhood Education Journal, 29 (2*), pp. 111 – 117

78. Fjortoft, I., (2004) 'Landscape as playscape: the effects of natural environments on children's play and motor development', *Children, Youth and Environments, 14* (92), pp. 21 – 4

79. Flouri, E., Midouhas, E., & Joshi, H. (2014). The role of urban neighbourhood green space in children's emotional and behavioural resilience. *Journal of environmental psychology*, *40*, 179-186.

80. Floyd, M. F., Spengler, J. O., Maddock, J. E., Gobster, P. H., & Suau, L. (2008). Environmental and social correlates of PAin neighborhood parks: an observational study in Tampa and Chicago. *Leisure Sciences*, *30*(4), 360-375.

81. Floyd, M. F., Spengler, J. O., Maddock, J. E., Gobster, P. H., & Suau, L. J. (2008). Park-based PAin diverse communities of two US cities: an observational study. *American journal of preventive medicine*, *34*(4), 299-305.

82. Friedli, L. (2012). CS06-03 - Mental health, resilience and inequalities: a social determinants perspective. *European Psychiatry*, *27*, 1

83. Funnell, Sue & Rogers, Patricia. (2011). Purposeful Program Theory: Effective Use of Theories of Change and Logic Models.

84. Garton, S., & Copland, F. (2010). 'I like this interview; I get cakes and cats!': the effect of prior relationships on interview talk. *Qualitative research*, *10*(5), 533-551.

85. Garrett, P (2016) Questioning Tales of 'Ordinary Magic': 'Resilience' and Neo-Liberal Reasoning, *The British Journal of Social Work*, Volume 46, Issue 7, 1909–1925

86. Geertz, C. (1973). *The interpretation of cultures* (Vol. 5043). Basic books.

87. Gergen, K. (1999). *An invitation to social construction.* London: Sage.

88. Gibson, J. J. (2014). *The ecological approach to visual perception: classic edition*. Psychology Press

.

89. Gill, T. (2014). The benefits of children's engagement with nature: A systematic literature review. *Children Youth and Environments*, *24*(2), 10-34.

90. Global Health Data Exchange Accessed online 14th March at: Global Health Data Exchange | GHDx

91. Goodenough, W. H. (1971). Anthropology and the AAAS. *Anthropology News*, *12*(6), 2-2.

92. Green, J., McLaughlin, K., Berglund, P., Gruber, M., Sampson, N., Zaslavsky, A. and Kessler, R. (2010). Childhood Adversities and Adult Psychiatric Disorders in the National Comorbidity Survey Replication I. *Arch Gen Psychiatry, 67(2)*, p.113

93. Groves, L., & McNish, H. (2008). Baseline study of play at Merrylee Primary School. *Glasgow (Forestry Commission Scotland)*.

94. Guba, E.G. (1981) Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Technology Research and Development,* 29, 75-91.

95. Gullone, E. (2000). The biophilia hypothesis and life in the 21st century: increasing mental health or increasing pathology?. *Journal of Happiness Studies*, *1*(3), 293-322.

96. Hammersley, M., & Atkinson, P. (2007). *Ethnography: Principles in practice*. Routledge.

97. Harden, J., (2000) 'There's no place like home', *Childhood, 7 (1*), pp. 43 – 59

98. Harris, F. (2017). The nature of learning at forest school: practitioners' perspectives. *Education 3-13*, *45*(2), 272-291.

99. Hart, A., & Heaver, B. (2013). Evaluating resilience-based programs for schools using a systematic consultative review. *Journal of Child and Youth Development*, *1*(1), 27-53.

100. Herbert, W., (2009), 'In Our Nature: a look at our primal connection to the natural world and the surprising psychological consequences of not getting enough time in the great outdoors', *Newsweek*, February 12th

101. Herman, S., Blumenthal, J. A., Babyak, M., Khatri, P., Craighead, W. E., Krishnan, K. R., & Doraiswamy, P. M. (2002). Exercise therapy for depression in

middle-aged and older adults: Predictors of early dropout and treatment failure. *Health Psychology*, *21*(6), 553.

102. Herrington, S., & Brussoni, M. (2015). Beyond physical activity: the importance of play and nature-based play spaces for children's health and development. *Current obesity reports*, *4*(4), 477-483.

103. Hewes, P., J., MacEwan, G., (2005) Let the Children Play: nature's answer to early learning, *Early Childhood Learning Knowledge Centre*.

104. Hinshaw, S. P., & Scheffler, R. M. (2014). *The ADHD explosion: Myths, medication, money, and today's push for performance.* Oxford University Press.

105. Hofman-Bergholm, M. (2024) Nature-Based Education for Facilitating Resilience and Well-Being among Youth—A Nordic Perspective. *Educ. Sci.* 14, 43.

106. Hughes K, Bellis MA, Hardcastle KA, Sethi D, Butchart A, Mikton C, Jones L, Dunne MP. (2017) The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health*.

107. Hughes, J., Rogerson, M., Barton, J., & Bragg, R. (2019). Age and connection to nature: When is engagement critical? *Frontiers in Ecology and the Environment, 17*(5), 265–269.

108. Hutchings, M. (2015). *Exam Factories? The Impact of Accountability Measures on Children and Young People*. National Union of Teachers.

109. Hollander, J. A. (2004). The social contexts of focus groups. *Journal of contemporary ethnography*, *33*(5), 602-637.

110. Internet Archive. 2022. *Demarginalizing The Intersection Of Race And Sex A Black Feminis : Kimberlé Williams Crenshaw : Free Download, Borrow, and Streaming : Internet Archive*. [online] Available at: <https://archive.org/details/DemarginalizingTheIntersectionOfRaceAndSexABlackFeminis/mode/1up> [Accessed 25 February 2022].

111. Johnson C, Burke C, Brinkman S, Wade T. (2017) A randomized controlled evaluation of a secondary school mindfulness program for early adolescents: Do we have the recipe right yet? *Behav Res Ther.;*99:37-46

112. Johnstone, A., McCrorie, P., Cordovil, R., Fjørtoft, I., Iivonen, S., Jidovtseff, B., Lopes, F., Reilly, J. J., Thomson, H., Wells, V., & Martin, A. (2022). Nature-based early childhood education and children's physical activity, sedentary behavior, motor competence, and other physical health outcomes: A mixed-methods systematic review. *Journal of PAand Health*, *19*(6), 456–472.

113. Karsten, L., (2005) 'It all used to be better? Different generations on continuity and change in urban children's daily use of space', *Children's Geographies, 3 (3*), pp. 275 – 290

114. Kahn Jr, P. H. (2002). Children's affiliations with nature: Structure, development, and the problem of environmental generational amnesia. *Children and nature: Psychological, sociocultural, and evolutionary investigations*, 93-116.

115. Kant, I. (1871). The Metaphysics of Ethics, trans. *E. Semple. Edinburgh: Thomas Clark*.

116. Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of environmental psychology*, *15*(3), 169-182.

117. Kaplan, R., & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. CUP Archive.

118. Kessler RC, McLaughlin KA, Green JG, Gruber MJ, Sampson NA, Zaslavsky AM, Aguilar-Gaxiola S, Alhamzawi AO, Alonso J, Angermeyer M, Benjet C, Bromet E, Chatterji S, de Girolamo G, Demyttenaere K, Fayyad J, Florescu S, Gal G, Gureje O, Haro JM, Hu CY, Karam EG, Kawakami N, Lee S, Lépine JP, Ormel J, Posada-Villa J, Sagar R, Tsang A, Ustün TB, Vassilev S, Viana MC, Williams DR. (2010) Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *Br J Psychiatry*.;197(5):378-85.

119. Klock, A., Clair, A. & Bradshaw, J. (2014). International Variation in Child Subjective Well-Being. *Child Indicators Research* 7*(1):* 1-20.

120. Kytta, M., (2004) 'The extent of children's independent mobility and the number of actualised affordances as criteria for child-friendly environments', *Journal of Environmental Psychology, 24*, pp. 179 – 198

121. Lahart I, Darcy P, Gidlow C, Calogiuri G. (2019) The Effects of Green Exercise on Physical and Mental Wellbeing: A Systematic Review. Int J Environ Res Public Health. 15;16(8):1352.

122. Larson, L. R., Whiting, J. W., Green, G. T., & Bowker, J. M. (2015). Contributions of non-urban state parks to youth physical activity: A case study in northern Georgia. *Journal of Park and Recreation Administration*, *33*(2), 20-36.

123. Li, Q. (ed.) (2012) Forest Medicine. New York: Nova Science Publishers Inc

124. Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry (Vol. 75).* Sage.

125. Liu, J. H., Jones, S. J., Sun, H., Probst, J. C., Merchant, A. T., & Cavicchia, P. (2012). Diet, physical activity, and sedentary behaviors as risk factors for childhood obesity: an urban and rural comparison. *Childhood Obesity (Formerly Obesity and Weight Management)*, *8*(5), 440-448.

126. Local Government Association Accessed online March 14th 2024 at: Public Health Grant allocations to local authorities 2024/25: On-the-day briefing, 5 February 2024 | Local Government Association

127. Looked after children and young people. Accessed online March 19th 2024 at: Looked-after children and young people (nice.org.uk)

128. Loucaides, C. A., Chedzoy, S. M., & Bennett, N. (2004). Differences in PAlevels between urban and rural school children in Cyprus. *Health education research*, *19*(2), 138-147.

129. Laumann, K., Gärling, T., & Stormark, K. M. (2003). Selective attention and heart rate responses to natural and urban environments. *Journal of environmental psychology*, *23*(2), 125-134.

130. Lovell, R., & Roe, J. (2009). Physical and mental health benefits of participation in forest school. *Countryside Recreation*, *17*(1), 20-23.

131. Lachowycz, K., & Jones, A. P. (2011). Greenspace and obesity: a systematic review of the evidence. *Obesity reviews*, *12*(5), e183-e189.

132. Loukaitou-Sideris, A., & Sideris, A. (2009). What brings children to the park? Analysis and measurement of the variables affecting children's use of parks. *Journal of the American Planning Association*, *76*(1), 89-107.

133. Loureiro, A., & Veloso, S. (2017). Green exercise, health and well-being. In *Handbook of Environmental Psychology and Quality of Life Research* (pp. 149-169). Springer, Cham.

134. Louv, R. (2005, 2008). *Last child in the woods: Saving our children from nature-deficit disorder*. Algonquin books.

135. Liamputtong, P. (2007). *Researching the vulnerable: A guide to sensitive research methods*. Sage.

136. Luchs, A., & Fikus, M. (2013). A comparative study of active play on differently designed playgrounds. *Journal of Adventure Education & Outdoor Learning*, *13*(3), 206-222.

137. Mackett, R., Paskins, J., (2004) Increasing Children's Volume of PAthrough Walk and Play, Contribution to the Department of Culture, Media and Sport and Department of Health consultation on Choosing Health, Choosing Activity, *http://eprints.ucl.ac.uk/1347/1/2004_40.pdf*

138. MaCcrone, p., S Dhanasiri., A Patel., M Knapp., Lawton-Smith (2008+ [online] Available at: <https://www.kingsfund.org.uk/sites/default/files/Paying-the-Price-the-cost-of-mental-health-care-England-2026-McCrone-Dhanasiri-

Patel-Knapp-Lawton-Smith-Kings-Fund-May-2008_0.pdf> [Accessed 25 February 2022].

139. Maini R, Mounier-Jack S, Borghi J. (2018) How to and how not to develop a theory of change to evaluate a complex intervention: reflections on an experience in the Democratic Republic of Congo. *BMJ Glob Health.* 3;3(1):

140. Malterud, K. (2001). Qualitative research: standards, challenges, and guidelines. *The lancet*, *358*(9280), 483-488.

141. Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American psychologist*, *56*(3), 227.

142. Masten, A.S (2014). Global perspectives on resilience in children and youth. *Child Development* 85, 6 – 20.

143. Masten, A. S., & Cicchetti, D. (2016). Resilience in development: Progress and transformation. In D. Cicchetti (Ed.), *Developmental psychopathology: Risk, resilience, and intervention* (3rd ed., pp. 271–333). John Wiley & Sons, Inc.

144. Masten (2019) Accessed online March 17th 2024 at: Resilience from a developmental systems perspective (wiley.com)

145. Mayer, F. S., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of environmental psychology*, *24*(4), 503-515.

146. Matthews, M., H., Limb, M., Percy-Smith, B., (1998) 'Changing worlds, changing places: the microgeographies of teenagers', *Tijdschrift voor Economische et Sociale Geografie, 89*, pp. 193 – 202

147. McCrone, P., Dhanasiri, S., Patel, A., Knapp, M., & Lawton-Smith, S. (2008). *Paying the price: the cost of mental health care in England to 2026*. The King's Fund

148. McEwen BS, Bowles NP, Gray JD, Hill MN, Hunter RG, Karatsoreos IN, Nasca C. (2015) Mechanisms of stress in the brain. *Nat Neurosci.* (10):1353-63

149. Mental Health of Children and Young People in England 2023. Accessed online 13th Feb 2024 at: Mental Health of Children and Young People in England, 2023 - wave 4 follow up to the 2017 survey - NHS England Digital

150. Merrick MT, Ford DC, Ports KA, Guinn AS. (2018) Prevalence of Adverse Childhood Experiences From the 2011-2014 Behavioral Risk Factor Surveillance System in 23 States. *JAMA Pediatr.*

151. Mitra R, Moore SA, Gillespie M, Faulkner G, Vanderloo LM, Chulak-Bozzer T, Rhodes RE, Brussoni M, Tremblay MS. (2020) Healthy movement behaviours in children and youth during the COVID-19 pandemic: Exploring the role of the neighbourhood environment. Health Place.

152. Mnich C, Weyland S, Jekauc D, Schipperijn J. (2019) Psychosocial and Physiological Health Outcomes of Green Exercise in Children and Adolescents-A Systematic Review. *Int J Environ Res Public Health*. 16(21)

153. Muñoz, S. A. (2009). Children in the Outdoors. *London: Sustainable Development Research Centre*.

154. Murphy, M and Fonagy, P (2012). Mental health problems in children and young people. In: *Annual Report of the Chief Medical Officer 2012. London: Department of Health.*

155. National Scientific Council on the Developing Child. *Excessive Stress Disrupts the Architecture of the Developing Brain: Working Paper #3.* [accessed online on the 8th February 2016] Available at: developingchild.harvard.edu/resources/reports_and_ working_papers/.

156. Natural England. (2009). Childhood and nature: A survey on changing relationships with nature across generations. London

157. *Natural England Walking the Way to Health Initiative scheme* (2009): http://publications.naturalengland.org.uk/publication/35009

158. Nesta Report (2020) Accessed online 23rd April 2024 at: Developing Social and Emotional Skills: Education policy and practice in the UK home nations (nesta.org.uk)

159. Newlove-Delgado, T., Russell, A. E., Mathews, F., Cross, L., Bryant, E., Gudka, R., Ukoumunne, O. C., & Ford, T. J. (2023). Annual research review: The impact of covid-19 on psychopathology in children and Young People Worldwide: Systematic Review of Studies with pre- and within-pandemic data. *Journal of Child Psychology and Psychiatry*, *64*(4), 611–640.

NICE Accessed online 23rd May 2024 at: National Institute for Health and Care Excellence - GOV.UK (www.gov.uk)

160. Nielsen, T., Hansen, K., B., (2007) 'Do green areas affect health? Results from a Danish survey on the use of green areas and health indicators'*, Health and Place, 13 (4),* pp. 839 – 850

161. Padrón, Y. N., Waxman, H. C., & Huang, S. L. (1999). Classroom behavior and learning environment differences between resilient and nonresilient elementary school students. *Journal of Education for Student Placed At Risk, 4 (1),* 63-81

162. Parkin, E., Long, B., Bate, A. (2018) "Children & young people's mental health – policy, services, funding and education" *Briefing Paper Number 07196 House of Commons Library* Accessed online at: researchbriefings.files.parliament.uk/documents/CBP-7196/CBP-7196.pdf

163. Parsonage M, Khan L, Saunders A (2014). *Building a better future: the lifetime costs of childhood behavioural problems and the benefits of early intervention.* London: Centre for Mental Health.

164. Pascoe M, Bailey AP, Craike M, Carter T, Patten R, Stepto N, Parker A. (2020) PAand exercise in youth mental health promotion: a scoping review. *BMJ Open Sport Exerc Med*. 6(1)

165. Pausch, M. (20121) The future of polarisation in Europe: Relative cosmopolitanism and democracy. *Eur. J. Futures Res.* 9, 12.

166. Patton, M. Q. (1960). *Qualitative evaluation and research methods* (p. 5321990). Newbury Park, CA: Sage.

167. Pawson, R., & Tilley, N. (1997). *An introduction to scientific realist evaluation.*

168. PMC, E., 2022. *Europe PMC*. [online] Europepmc.org. Available at: <https://europepmc.org/article/MED/26451131> [Accessed 25 February 2022].

169. Pretty J, Griffin M, Sellens M, Pretty CJ. 2003. *Green Exercise: Complementary Roles of Nature, Exercise and Diet in Physical and Emotional Well-Being and Implications for Public Health Policy*. CES Occasional Paper 2003– 1. Colchester: University of Essex.

170. Pretty J, Griffin M, Peacock J, Hine R, Sellens M, South N. 2005. *A countryside for health and well-being: The physical and mental health benefits of green exercise*. Sheffield: Countryside Recreation Network.

171. Pretty, J., Peacock, J., Hine, R., Sellens, M., South, N., & Griffin, M. (2007). Green exercise in the UK countryside: Effects on health and psychological well-being, and implications for policy and planning. *Journal of environmental planning and management*, *50*(2), 211-231.

172. Pretty, J., Rogerson, M., & Barton, J. (2017). Green mind theory: how brain-body-behaviour links into natural and social environments for healthy habits. *International journal of environmental research and public health*, *14*(7), 706.

173. Rasmussen, K., (2004) 'Places for children – children's places', *Childhood, 11* (2), pp. 155 – 173

174. Public Health Scotland Annua Review (2023) Accessed online March 14th at: Public Health Scotland Annual Review 2023 - Get Involved - News - Public Health Scotland

175. Pupil Premium strategy 2010 Accessed online March 2024 at: Pupil premium - GOV.UK (www.gov.uk)

176. Putra, I. G., Astell-Burt, T., Cliff, D. P., Vella, S. A., John, E. E., & Feng, X. (2020). The relationship between green space and prosocial behaviour among children and adolescents: A systematic review. *Frontiers in Psychology*, *11*.

177. Riazi NA, Wunderlich K, Gierc M, Brussoni M, Moore SA, Tremblay MS, Faulkner G. (2021) "You Can't Go to the Park, You Can't Go Here, You Can't Go There": Exploring Parental Experiences of COVID-19 and Its Impact on Their Children's Movement Behaviours. Children (Basel).

178. Rees. G., Bradshaw, J., Haridhan, Goswami,. H & Keung,. H. (2007) Children's Well-being: A national survey of young people's well-being *National Survey of Child and Adolescent Well-being Report The Children's Society*

179. Rees, G. & Main, G. (eds) (2015) *Children's views on their lives and well-being in 15 countries: An initial report on the Children's Worlds survey, 2013-14.* York, UK: Children's Worlds Project

180. Reed, K., Wood, C., Barton, J., Pretty, J. N., Cohen, D., & Sandercock, G. R. (2013). A repeated measures experiment of green exercise to improve self-esteem in UK school children. *PLoS One*, *8*(7), e69176.

181. Reiss, F. (2013). Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review. *Social Science & Medicine*, *90*, 24-31. http://dx.doi.org/10.1016/j.socscimed.2013.04.026

182. Restall, B., & Conrad, E. (2015). A literature review of connectedness to nature and its potential for environmental management. *Journal of Environmental Management*, *159*, 264-278.

183. Richardson, E. A., & Mitchell, R. (2010). Gender differences in relationships between urban green space and health in the United Kingdom. *Social science & medicine*, *71*(3), 568-575.

184. Ritchie, J. (2014). In Ritchie J., Lewis J., McNaughton Nicholls C. and Ormston R. *Qualitative research practice: A guide for social science students and researchers*.

185. Roberts, W. M., Newcombe, D. J., & Davids, K. (2019). Application of a constraints-led approach to pedagogy in schools: Embarking on a journey to nurture physical literacy in primary physical education. *Physical Education and Sport Pedagogy*, *24*(2), 162-175.

186. Robson, C (2002) *Real World Research,* 2nd edition, Oxford: Blackwell

187. Roe, J., & Aspinall, P. (2011). The restorative benefits of walking in urban and rural settings in adults with good and poor mental health. *Health & place*, *17*(1), 103-113.

188. Rosenbaum, D. P. (1988). Community crime prevention: A review and synthesis of the literature. *Justice Quarterly*, *5*(3), 323-395.

189. Rubin, H. J., & Rubin, I. S. (1995). *Qualitative interviewing: The art of hearing data*. Sage.

190. Rutter, M. (2000) Psychosocial influences: Critiques, findings and research needs. *Development & Psychopathology* 12, 375-405

191. Ryan, R. M., Weinstein, N., Bernstein, J., Brown, K. W., Mistretta, L., & Gagne, M. (2010). Vitalizing effects of being outdoors and in nature. *Journal of Environmental Psychology*, *30*(2), 159-168.

192. Samborski, S. (2010). Biodiverse or barren school grounds: Their effects on children. *Children Youth and Environments*, *20*(2), 67-115.

193. Schneller, M.B., Schipperijn, J., Nielsen, G. (2017). Children's PAduring a segmented school week: results from a quasi-experimental education outside the classroom intervention. *Int J Behav Nutr Phys Act* **14**, 80

194. Schwartz, B.; Ward, A. Doing Better but Feeling Worse: The Paradox of Choice. In Positive Psychology in Practice; Linley, A., Joseph, S., Eds.; John Wiley & Sons: Hoboken, NJ, USA, 2004.

195. Sempik, J., & Bragg, R. (2013). Green Care: Origins and Approaches. *Green Care: for Human Therapy, Social Innovation, Rural Economy, and Education. New York: Nova Science Publishers*.

196. Sen, A. Other People. British Academy Lecture. 2000. Available online: https://www.thebritishacademy.ac.uk/documents/2096 /111p319.pdf (accessed on 10 November 2023).

197. Shonkoff, J. P., Garner, A. S., Committee on Psychosocial Aspects of Child and Family Health, & Committee on Early Childhood, Adoption, and Dependent Care. (2011). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, peds-2011.

198. Shonkoff, J. P., Phillips, D. A., & National Research Council. & the Committee on Integrating the Science of Early Childhood Development. 2000. *From neurons to neighborhoods: The science of early childhood development*.

199. Sobel, D. (2008). *Childhood and nature: Design principles for educators*. Stenhouse Publishers.

200. Spence JC, Rhodes RE, McCurdy A, Mangan A, Hopkins D, Mummery WK. (2020) Determinants of PAamong adults in the United Kingdom during the COVID-19 pandemic: The DUK-COVID study. Br *J Health Psychol.* 26(2):588-605.

201. Spinka, M., Newberry, R. C., & Bekoff, M. (2001). Mammalian play: training for the unexpected. *The Quarterly review of biology*, *76*(2), 141-168.

202. Taylor, A., F., Kuo, F., E., Sullivan, W., C., (2001) 'Coping with ADD – the surprising connection to green play settings', Environment and Behaviour, 33 (1), pp. 54 – 77

203. Taylor, G.W., & Ussher, J. M. (2001). Making sense of S&M: A discourse analytic account. *Sexualities,* 4 (3) 293 – 314

204. *The SAGE Encyclopedia of Communication Research Methods*, 2017. Participant Observation.

205. Tebelius Bodin, A. Den Analoga Hjärnan i den Digitala Tillvaron; Hjärna Utbildning AB: Stockholm, Sweden, 2020

206. Tillmann S, Tobin D, Avison W, Gilliland J. (2018) Mental health benefits of interactions with nature in children and teenagers: a systematic review. *J Epidemiol Community Health*. 72(10):958-966.

207. Thomas, G. Thompson, J. (2004) A Child's Place: why environment matters to children, (London: Green Alliance\Demos) http://www.demos.co.uk/files/AChildsPlace.pdf

208. Tong, L., Shen, H., Perreau, V. M., Balazs, R., & Cotman, C. W. (2001). Effects of exercise on gene-expression profile in the rat hippocampus. *Neurobiology of disease*, *8*(6), 1046-1056.

209. Townsend, M. (2006). Feel blue? Touch green! Participation in forest/woodland management as a treatment for depression. *Urban Forestry & Urban Greening*, *5*(3), 111-120.

210. Teas, J., Hurley, T., Msph, S. G., & Mph, K. O. (2007). Walking outside improves mood for healthy postmenopausal women. *Clinical medicine. Oncology*, *1*, CMO-S343.

211. Theory Section. 2022. *What is Critical Realism?*. [online] Available at: <http://www.asatheory.org/current-newsletter-online/what-is-critical-realism> [Accessed 25 February 2022].

212. Tolich, M., & Davidson, C. (2003). The fascinating world of social science research. *Social science research in New Zealand: Many paths to understanding*, 7-22.

213. Traynor, Oliver, Paul McCrorie, Nai Rui Chng, and Anne Martin. 2022. "Evaluating Outdoor Nature-Based Early Learning and Childcare Provision for Children Aged 3 Years: Protocol of a Feasibility and Pilot Quasi-Experimental Design" *International Journal of Environmental Research and Public Health* 19, no. 12: 7461

214. Twenge, J. iGen; Atria Books: New York, NY, USA, 2017.

215. Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science*, *224*(4647), 420-421.

216. Ulrich, R. S., Simons, R. F., Losito, B. D., Fiorito, E., Miles, M. A., & Zelson, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of environmental psychology*, *11*(3), 201-230.

217. Ungar, M. (2003). Qualitative contributions to resilience research. *Qualitative social work*, *2*(1), 85-102.

218. Ungar, M. (2013) Resilience, trauma, context and culture. *Trauma, Violence, & Abuse* 14, 253-264

219. Ungar, M. (2014). Practitioner Review: Diagnosing childhood resilience - a systemic approach to the diagnosis of adaptation in adverse social and physical ecologies. *Journal Of Child Psychology And Psychiatry*, *56*(1), 4-17. http://dx.doi.org/10.1111/jcpp.12306

220. Ungar, M., Ghazinour, M., & Richter, J. (2013a) What is resilience within the ecology of human development? *Journal of Child Psychology and Psychiatry* 54, 348 – 366

221. Ungar M. (2019) Designing resilience research: Using multiple methods to investigate risk exposure, promotive and protective processes, and contextually relevant outcomes for children and youth. *Child Abuse Negl.*

222. Ungar M, Theron L. Resilience and mental health: how multisystemic processes contribute to positive outcomes. (2020) *Lancet Psychiatry*. (5):441-448.

223. UNICEF 2021 report Accessed online 6th May at: UNICEF Annual Report 2021 | UNICEF accessed online 14th March 2024

224. van Dijk-Wesselius, J. E., van den Berg, A. E., Maas, J., & Hovinga, D. (2020). Green schoolyards as outdoor learning environments: Barriers and solutions as experienced by primary school teachers. *Frontiers in Psychology*, *10*.

225. Valentini, Manuela & Morosetti, Alessia. (2021). Movement, green exercise and playgrounds in developmental age, for a correct lifestyle.

226. Waite, S. (2010). Losing our way? The downward path for outdoor learning for children aged 2–11 years. *Journal of Adventure Education & Outdoor Learning*, *10*(2), 111-126.

227. Waite, Sue. 2020. "Where Are We Going? International Views on Purposes, Practices and Barriers in School-Based Outdoor Learning" *Education Sciences* 10, no. 11: 311

228. Weare, K, Gray, G (2003) What Works in Developing Children's Emotional and Social Competence and Wellbeing? Accessed online March 17th 2024 https://www.researchgate.net/publication/242610650_What_Works_in_Developing_Children's_Emotional_and_Social_Competence_and_Wellbeing

229. Weiss, Carol (1995). *Nothing as Practical as Good Theory: Exploring Theory-Based Evaluation for Comprehensive Community Initiatives for Children and Families* in 'New Approaches to Evaluating Community Initiatives'. Aspen Institute

230. White Paper: Transforming Children and Young People's Mental Health Provision (2017) Accessed online 13th March 2024 Transforming children and young people's mental health provision: a green paper - GOV.UK (www.gov.uk)

231. Wilson, E. 0. 1984. *Biophilia*: The Human Bond with Other Species. Cambridge: Harvard University Press

232. Wells, N.M. (2014) The Role of Nature in Children's Resilience: Cognitive and Social Process In K.G. Tidball & M.E. Kransy (eds) *Greening in the Red Zone: Disaster, Resilience and Community Greening* Springer Science and Business Media Dorderecht pp 95 – 109.

233. Wells, N., and K. Leskies.(2006). Nature and the life course: Pathways from childhood nature experiences to adult environmentalism. *Children, Youth and Environments 16*, no 1: 1-2

234. Wells, N., Evans., G., (2003) Nearby nature: effects of 'greeness' on children's cognitive functioning. *Environ Behaviour* 35 (3), 311-330

235. Wigelsworth, M., Humphrey, N., & Lendrum, A. (2012). A national evaluation of the impact of the secondary social and emotional aspects of learning (SEAL) programme. *Educational Psychology*, *32*(2), 213-238.

236. Wheeler BW, Cooper AR, Page AS, Jago R (2010) Greenspace and children's physical activity: a GPS/GIS analysis of the PEACH project. *Prev Med 51(2):*148–152.

237. Wood, C., Gladwell, V. and Barton, J. (2014a). A Repeated Measures Experiment of School Playing Environment to Increase PAand Enhance Self-Esteem in UK School Children. *PLoS ONE*, 9(9), p.e108

238. Wood, C., Sandercock, G., & Barton, J. (2014). Interactions between PAand the environment to improve adolescent self–esteem: a randomised controlled trial. *International journal of Environment and Health*, *7*(2), 144-155.

239. Yule K, Houston J, Grych J. (2019) Resilience in Children Exposed to Violence: A Meta-analysis of Protective Factors Across Ecological Contexts. Clin Child Fam *Psychol Rev.* 406-431.

240. Zucca C, McCrorie P, Johnstone A, Chambers S, Chng NR, Traynor O, Martin A. (2023) Outdoor nature-based play in early learning and childcare centres: Identifying the determinants of implementation using causal loop diagrams and social network analysis. Health Place.

Appendix 1

Semi-Structured Interview Schedule (staff and parents)

1. What is your understanding of the term 'resilience'?
2. What are your thoughts about how resilience could impact children?
3. What do you think affects the development of resilience in children child?
4. What are your general thoughts about stress in children?
5. What do you think about a link between stress and resilience?
6. What are your general thoughts about the well-being of children?
7. What are your general thoughts on the mental health of children in the UK?
8. What do you think about a link between well-being and resilience?
9. What do you think about a link between stress well-being and resilience?
10. What are your general thoughts on the mental health of children in the UK?
11. What experiences do you have of classroom-based techniques to improve resilience in children?
12. How skilled do you feel to deliver these types of techniques (teachers only). As a parent, how confident do you feel applying techniques to build the resilience of your child (parents only)
13. What do you perceive the benefits to be of programmes that aim to build resilience in children within schools?
14. What do you perceive the barriers to be of these programmes?
15. What are your views on the impact of exercise on the resilience/ stress levels and or the well-being of children?
16. What are your general thoughts about the impact that nature could have on the well-being of children?
17. What barriers do you perceive there to be to accessing nature through schools?
18. What experiences do you have of using nature as a way to build resilience in children?
19. How would you feel about a nature-based intervention being used to build resilience and reduce stress in children?
20. How do you feel about the impact of exercise on the mood of children?
21. How often do you use exercise to improve the mood of children?
22. What are your feelings about the use of exercise as part of an intervention to boost resilience in children?

23. How would you feel about being asked to increase the amount of exercise children are being exposed to within schools to improve resilience?
24. Can you tell me about any barriers you would see about teachers being told to do this?
25. Would you like to make any other comments on the topics we have discussed?

Semi-Structured Interview Schedule (children)

1. What do you think I mean by a 'feeling'?
2. Can you tell me about different feelings you can have?
3. Taking a look at the picture (emotion stimulus) what do you think the little girl is feeling in the different pictures and how do you know that she is feelings these emotions?
4. How do you know when you are feeling happy?
5. What do the teachers in your school do to make you feel happy?
6. What would you like teachers in your school to do to make you feel happy?
7. How would you feel if you were asked to talk about things that you could do to make you feel happier in a lesson with the rest of your class?
8. How do you know when you are feeling a bit worried?
9. What would you like your teachers to do when you are feeling worried?
10. How would you feel if you were asked to talk about things that make you worry in a lesson with the rest of your class?
11. Can you tell me about a time when you found something hard?
12. How did you feel when you were faced with doing something hard?
13. Can you describe a time when you ever felt like giving up when something was difficult?
14. Can you tell me about a time where you decided not to give up?
15. What do you think made you carry on even though you wanted to give up?
16. Have you ever learned anything from a time when something went wrong?
17. What did you do to be able to learn from this?
18. Can you tell me about a time when something didn't go the way you wanted it to?

19. How did you feel when this happened?
20. What do you think I mean by ‘nature?’ can you choose a picture of nature for me…why is this nature? (nature stimulus)
21. How do you feel when you get a chance to play outside in nature?
22. What kind of things do you do in school to exercise?
23. What kind of feeling or mood do you have when you are exercising and do you like exercising at school?
24. Would anything make you want to exercise more at school?
25. How would you feel about being asked to exercise in nature and what activities might you like to do?
26. What else would you like to tell me about?

Understanding Emotions Stimulus Question 3

Understanding Nature Stimulus Question 20

Appendix 2

Participant Information Sheet (Teacher)

We would like to invite you to participate in this research project that explores how nature and exercise could be used to develop resilience in children. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, it is important for you to read the following information carefully and discuss it with others if you wish. You should also ask the researchers if there is anything that is not clear or if you would like further information.

Study Details

This study aims to find out what you think about stress, resilience and well-being in children. By resilience we mean the ability to 'bounce back' following a set-back. We want to understand how you feel the children you work with are affected by these things and how you feel about the use of nature and exercise to improve the resilience of children.

If you are interested in taking part in the study, you will be asked to email the researcher to express your interest who will respond to arrange the process. We want to interview seven teachers (one from each year group) as well as your Head teacher as part of a focus group. The interview will take place in a private room within your school. Only you, the researcher (Lucy Forbes) and the other members of the focus group will be present. Rather than giving answers to a series of questions it will be more like a chat than an interview. In the longer term this might lead to better resilience interventions being developed for children within primary schools in the UK, and a reduction in the number of reported incidents of mental health issues in children.

The interview will be recorded so that we can be sure about what you have said and so it can later be transcribed (that is, written down) for the researcher to study. After the interview your name will be taken off anything that is written down so no one will know it is you talking. You will not have to answer a question if you don't want to. You can ask for the recording to stop and/or to stop taking part in the study at any point. If you agree to take part in the interview, you won't be asked to directly draw upon any personal experiences from your childhood.

It is up to you to decide whether or not to take part. If you choose not to participate it will involve no penalty or loss of benefits to which you are otherwise entitled. If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form. You are free to withdraw at any time and without giving a reason.

All data will be collected and stored in accordance with the Data Protection Act 1998 for a period of 12 months, after which it will disposed of in a secure manner. The researcher has undergone a satisfactory criminal records check.

Thank you for taking the time to consider taking part in this research. If you would like to take part in this research, or have any questions about the research or your rights as a participant, please contact me (Lucy Forbes) at w1609164@my.westminster.ac.uk

Participant Information Sheet (Parent)

We would like to invite you to participate in this research project that explores how nature and exercise could be used to develop resilience in children. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you

decide whether you want to take part, it is important for you to read the following information carefully and discuss it with others if you wish. You should also ask the researchers if there is anything that is not clear or if you would like further information.

Study Details

This study aims to find out what you think about stress, resilience and well-being in children. By resilience we mean the ability to 'bounce back' following a set-back. We want to understand how you feel children are affected by these things and how you feel about the use of nature and exercise to improve the resilience of children.

If you are interested in taking part in the study, you will be asked to email the researcher to express your interest who will respond to arrange the process. We want to interview eight parents across two focus groups (4 parents per group). The interview will take place in a private room within the school. Only you, the researcher (Lucy Forbes) and the other members of the focus group will be present. Rather than giving answers to a series of questions it will be more like a chat than an interview. In the longer term this might lead to better resilience interventions being developed for children within primary schools in the UK, and a reduction in the number of reported incidents of mental health issues in children.

The interview will be recorded so that we can be sure about what you have said and so it can later be transcribed (that is, written down) for the researcher to study. After the interview your name will be taken off anything that is written down so no one will know it is you talking. You will not have to answer a question if you don't want to. You can ask for the recording to stop and/or to stop taking part in the study at any point. If you agree to take part in the interview, you won't be asked to directly draw upon any personal experiences from your childhood.

It is up to you to decide whether or not to take part. If you choose not to participate it will involve no penalty or loss of benefits to which you are otherwise entitled. If you decide to participate you will be given this information sheet to keep and be asked to sign a consent form. You are free to withdraw at any time and without giving a reason.

All data will be collected and stored in accordance with the Data Protection Act 1998 for a period of 12 months, after which it will disposed of in a secure manner. The researcher has undergone a satisfactory criminal records check.

Thank you for taking the time to consider taking part in this research. If you would like to take part in this research, or have any questions about the research or your rights as a participant, please contact Lucy Forbes at w1609164@my.westminster.ac.uk

Participant Information Sheet (Child)

We would like to invite your child to participate in this research project that explores how nature and exercise could be used to develop resilience in children. They should only participate if they want to; choosing not to take part will not disadvantage them in any way. Before you decide whether you want them to take part, it is important for you to read the following information carefully and discuss it with your child. You should also ask the researchers if there is anything that is not clear or if you or your child would like further information.

Study Details

This study aims to find out your child's thoughts on the different ways children can tackle difficult situations that they are faced with. We want to understand their opinions on topics such as 'not giving up' and 'learning from mistakes'. We are also interested in their thoughts about play time and movement in nature. To tackle some age-appropriate barriers to such discussions, in some instances photos will be used, for example photos of the countryside versus a busy town, or photos of different emotional expressions. For very young children (reception and Year 1) teddy bears and pictures will be used to help them understand some of the concepts we will be discussing.

If you are interested in your child taking part in the study, you will be asked to sign the consent form and return it to the school with your child. We want to interview four children from each year group with a class teacher present. The interview will take place in a private room in the school. Only your child, the researcher (Lucy Forbes), the class teacher and the other members of the focus group will be present. Rather than giving answers to a series of questions it will be more like a chat than an interview. In the longer term this might lead to better resilience interventions being developed for children within primary schools in the UK, and a reduction in the number of reported incidents of mental health issues in children.

The interview will be recorded so that we can be sure about what your child has said and so it can later be transcribed (that is, written down) for the researcher to study. After the interview their name will be taken off anything that is written down so no one will know it is your child talking. They will not have to answer any question they do not want to and they can ask for the recording to stop and/or to stop taking part in the study at any point or they can show a green card to their teacher. Your child won't be asked to directly draw upon any personal experiences.

It is up to you to decide whether or not your child takes part. If you choose not to agree for your child to participate it will involve no penalty or loss of benefits to which they are entitled. If you decide to participate you will be given this information sheet to keep and be asked to sign a consent form. You are free to withdraw your child from the study at any time and without giving a reason.

All data will be collected and stored in accordance with the Data Protection Act 1998 for a period of 12 months, after which it will disposed of in a secure manner. The researcher has undergone a satisfactory criminal records check.

Thank you for taking the time to consider taking part in this research. If you would like to take part in this research, or have any questions about the research or your rights as a participant, please contact me (Lucy Forbes) at w1609164@my.westminster.ac.uk

Informed Consent Form

Participant's Statement

I …….....

agree that I have (please tick)

- ☐ read the information sheet and/or the project has been explained to me orally.
- ☐ had the opportunity to ask questions and discuss the study.
- ☐ received satisfactory answers to all my questions or have been advised of an individual to contact for answers to questions about the research and my rights as a participant.
- ☐ understood that my participation will be taped and I am aware of and consent to, any use you intend to make of the recordings after the end of the project.
- ☐ understood that the information I have submitted will be published as a report and my school will be sent a copy. Confidentiality and anonymity will be maintained and it will not be possible to identify me from any publications.

I understand that I am free to withdraw from the study without penalty if I so wish and I consent to the processing of my personal information for the purposes of this study only and that it will not be used for any other purpose. I understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.

Signed: Date:

Investigator's Statement
I ……..
confirm that I have carefully explained the purpose of the study to the participant and outlined any reasonably foreseeable risks or benefits (where applicable).

Signed: Date:

Informed Consent Form (Child)

Participant's Statement (parent/caregiver name on behalf of the child)
I …….....
agree that I have (please tick)

- read the information sheet and/or the project has been explained to me orally.
- had the opportunity to ask questions and discuss the study.
- received satisfactory answers to all my questions or have been advised of an individual to contact for answers to questions about the research and rights as a participant
- understood that participation will be taped and I am aware of and consent to, any use you intend to make of the recordings after the end of the project.
- understood that the information my child has submitted will be published as a report and my school will be sent a copy. Confidentiality and anonymity will be maintained and it will not be possible to identify me from any publications.
- explained these points (where appropriate) to my child and they are happy to participate

I understand that I am free to withdraw from the study without penalty if I so wish and I consent to the processing of my personal information for the purposes of this study only and that it will not be used for any other purpose. I understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.

Signature of parent/caregiver
Name of child:
Signature of child:
Date:

Investigator's Statement
I ……..
confirm that I have carefully explained the purpose of the study to the participant and outlined any reasonably foreseeable risks or benefits (where applicable).

Signed: Date:

Participant Information Sheet

We would like to invite you to participate in this research project that explores how nature and exercise could be used to develop resilience in children. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, it is important for you to read the following information carefully and discuss it with others if you wish. You should also ask the researchers if there is anything that is not clear or if you would like further information.

Study Details

This study aims to find out what you think about stress, resilience and well-being in children and how you feel about the use of nature and exercise to improve the resilience of children. By resilience we mean the ability to 'bounce back' following a set-back. We want to understand your views about taking part in green exercise activities with children within the school setting.

As part of this research, the researcher will be observing some of the outdoor sessions that you are involved in, in order to gain insight into the green exercise experience within schools. This will involve the researcher taking notes about the different kinds of activities and interactions that take place as children engage in green exercise. Following this, an interview will take place in a private room within your school. Only you and the researcher (Lucy Smith) will be present. Rather than giving answers to a series of questions it will be more like a chat than an interview. In the longer term this might lead to better green exercise and resilience interventions being developed for children within primary schools in the UK, and a reduction in the number of reported incidents of mental health issues in children.

The interview will be recorded so that we can be sure about what you have said and so it can later be transcribed (that is, written down) for the researcher to study. After the interview your name will be taken off anything that is written down so no one will know it is you talking. You will not have to answer a question if you don't want to. You can ask for the recording to stop and/or to stop taking part in the study at any point. If you agree to take part in the interview, you won't be asked to directly draw upon any personal experiences from your childhood.

It is up to you to decide whether or not to take part. If you choose not to participate it will involve no penalty or loss of benefits to which you are otherwise entitled. If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form. You have the right to opt out at any point during the research and not be observed should you choose, without giving reason.

All data will be collected and stored in accordance with the General Data Protection Regulations (2018). The researcher has undergone a satisfactory criminal records check.

Thank you for taking the time to consider taking part in this research. If you would like to take part in this research or have any questions about the research or your rights as a participant, please contact me (Lucy Smith) at w1609164@my.westminster.ac.uk.

Informed Consent Form

Participant's Statement

I .....

agree that I have (please tick)

☐ read the information sheet and/or the project has been explained to me orally.

- had the opportunity to ask questions and discuss the study.
- received satisfactory answers to all my questions or have been advised of an individual to contact for answers to questions about the research and my rights as a participant.
- understood that my participation will be taped and I am aware of and consent to, any use you intend to make of the recordings after the end of the project.
- understood that the information I have submitted will be published as a report and my school will be sent a copy. Confidentiality and anonymity will be maintained and it will not be possible to identify me from any publications.

I understand that I am free to withdraw from the study without penalty if I so wish and I consent to the processing of my personal information for the purposes of this study only and that it will not be used for any other purpose. I understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the General Data Protection Regulations 2018.

Signed: Date:

Investigator's Statement

I ……..

confirm that I have carefully explained the purpose of the study to the participant and outlined any reasonably foreseeable risks or benefits (where applicable).

Signed: Date:

Appendix 3: Coding Framework

Code	Definition	Example
1. Access to the green experience	References to exposure to nature/green exercise and location	*"I grew up in a city, and when we were going out, firstly we didn't have much time, mostly we were in the classroom , but we wouldn't get to the nature place we would mostly go to an indoor play area. Um or just places we can hang out and it's very different in that sort of place, in a city cos we would have to go to the city library where we would not do study, we would just hang out because there were like no parks, no walks, no fields"* *"I think it's often your experiences which make a difference, for example I grew up in the countryside and I'd go I did a lot of outdoor things I was into horse-riding, so it seems very natural and normal to me to go out on a walk at the weekend and that was one of my reasonings for moving to a country rural environment, so I could replicate that and show an appreciation of nature with my children"*
2. The value of green exercise	Direct references to opinions about exposure to nature	*"I like going out anytime of the year because I like going out in the garden. Its good in the summer because the sun is out. And some animals come out of hibernation which is nice."* *"Oh, they love it, the parents they've very, they're really sweet and they said, oh, a couple of them said they absolutely love it and they come back, and they said, thank you for doing it, especially the ones who've got the children who are bit challenged. And they said, they do actually get a lot from it in the growing things and digging the soil and talking to their friends."*
3. Mastery	References to a feeling of accomplishment	*"when you score goals you feel happy, cos once I scored 9 goals, I felt proud and my mum and dad did"*

4. Adaptive practice	References to practitioners being resourceful/flexible to make green exercise happen	*"The playground is mainly tarmac with a little bit of grass, but we have got a park area opposite , we have river going down either side of the school um, using some of that, there are some trees, it's not like a wood, but, that's what we've got, we're using what we have got."*
5. Individual differences	References to age, gender or background of children	*"again that's coming from the very young children , in foundation where again, they've got trousers and they want to spend all their time in the mud… but then they lose that instinct when they are in year 6" (age)* *"boys particularly need to be outside, whereas the girls if you wonder through schools are in huddled together in groups, whether that's under an awning, or wherever they sort of come together whereas the boys are literally like puppies, you drop beads from a height and they just scatter…. (gender)* *"It does come from the parents, I think if a parent is showing they are only going to model their parents I think anyway I think that's one of the major thing is … if they are taught… like you say if they come from a harsher background … then they are just going to echo what they've been brought up" (background)*
6. Awareness	References to being aware, or a lack of awareness of (1) mental health (2) green exercise/nature provisions	*"I think it's frightening how a lot of children have no idea where food comes from, and um.."* *"Well - I found a few years ago, we went on a trip to X in Y, and we were eon the motorway and I was chatting to the children about what we could see and sheep's and they were like " what sheep's – I've never seen sheep before" and I was like "what?" you've never seen a real sheep before? I'm sure they've been up and down the motorway millions of time before as a lot of them have relative and family in X and X, whatever, but you've never noticed a sheep? I find that bizarre"* *"Um, a lot of people, people, mental health still in the public is very, you know, is con, there's a confusion about what it is. It gets blurred into other things."*

7. Awe	References to feelings of amazement or appreciation in the presence of nature	*"Yeah, yeah, because when I go in before, and like I, I cycle in, and I go in and I do a safety sweep, obviously, before they come in. And like so it's just me in there, and like sometimes I spot the deer, and it's just, you, all you hear is the birds, and the, and it's just heavenly."*
8. Behaviour management	References to coping with children's challenging behaviour in the classroom or in nature	*"I know some children who have some very extreme behaviour, where they have used forest schools as a kind of therapy activity for the children, actually for those children, you would have looked at them and give "you'd never give a kid like that a knife in a million years, and the risk assessment around it would be crazy, you don't know how they are going to react"*
9. Biophilia and conservation	References to flora, fauna and maintaining nature	*"you can always just sit around why you are eating your lunch outside and you can also watch birds if it's a nice day, like on summer"* *"sometimes you can save some creatures"* *P: yes well we also feel that for children to get that sort of sense of responsibility, you know to look after the plants, you know, how we treat the trees and the wood and the plants and the woods because they are the keepers of the future, they'll be looking after it in the future ..... and if they don't have that,* ***I: conservation….*** *P: they won't know about it in the future or they won't appreciate how important it is…yeah…*
10. Challenging expectations	References to a change in beliefs about someone or an experience	*"I know some children who have some very extreme behaviour, where they have used forest schools as a kind of therapy activity for the children, actually for those children, you would have looked at them and give "you'd never give a kid like that a knife in a million years, and the risk assessment around it would be crazy, you don't know how they are going to react". And actually the difference it makes that you put the trust in the child to do*

		that, and their reaction to being given that trust, and learning the fact that it's a tool and it's there to do a job, has changed those children's views and outlooks on that sort of thing, And that's a massive impact to have, and obviously we are not going to see that here as our children don't have those sorts of problems, but those types of stories flood the forest school leaders community of children who come from very challenging behaviours and the sort of work that we can do with them."
11. Chronosystems (*Systems)	References to changes over time	*"or the woods, I mean used to live in xxxxx and we used to have wood upon woods up there and we walked for miles and we didn't have mobile phones back then either…."* *"things have moved on two generations really since Theresa May was 11 as she is 60 isn't she…?"*
12. Coming out of your shell	References to children feeling able to be themselves/ feeling comfortable in their own skin	*"because no one, its only your friends that's going to hear what your saying and they are listening to you and no one else is listening to you. So you can just sort of let everything out."* *"I think there definitely were some children really come out of themselves and feel a lot more at home and, I'm thinking back to the forest school experience I had one boy in my class, he was, he was, quite quiet, however in forest school, things turned the tables, and he was quite bossy in a way, and he was getting the others to join in with his group – whatever they were doing or making, and maybe because it was an entirely different surrounding to in the classroom. So, I think with some children it does. I would like to think there are some children where it's made a major difference and there are some children it's a sort of a graduated scale."*
13. Commitment to GE	References to sticking with the green exercise provision	*"Um since I've been here I've been helping with gardening club most of the time, so I've been helping, not 12 years but probably about nine years I've been helping with the gardening – "* *"Which is what happened you know, for so long, it's people come in and do stuff, and then when they're not available, no one takes it on –"*
14. Confidence	References to a belief in abilities	*"they just wouldn't at first and it took 2 terms for them to have the confidence*

		to walk on a rope bridge or go on a swing because they hadn't done it…" *"um just by their confidence outside and how happy they were when they'd completed something they weren't able to do before…"* *"so the more confidence ones tended to go and just explore themselves and the ones that weren't that sure sort of lingered around you until they were more confident"*
15. Creativity	References to using imagination in nature	*I like having tea parties with like the food and making perfumes and pretending to be a chef with the plants and stuff* *Yeah, I like looking at the clouds and I like looking at the shapes that they make*
16. Culture	References to shared beliefs/values/ideologies of a community	*"I guess in summary, I would say, umm it requires a cultural shift, so Sweden has a very different outlook on life I would say than we do in the UK and I think we as a whole are becoming more materialist, there's more pleasure to have the bigger house and better car, and it's about materialism…"* *"…exactly I was reading about the Danes for example in Europe they have some of the highest taxation and they see it as an investment in society, but here we begrudge it, so here it requires a massive shift in culture which isn't going to happen overnight…"* *"And if we look at other countries like in Sweden and places where their children don't even start school until seven, they're doing just fine thank you very much."*
17. Curriculum	References to teaching content	*"there is a choice and there's an element at lunch time they have to gout so there is an element, but I think because of the curriculum and all of the things they are having to cover less time is spent outside and more time is spent inside…"* *"I think that's because further up the school, the teachers have a curriculum, and they have to stick to the curriculum and that's it…"*

		"you know its had these teachers have got so much to do and they've got to go into school in their holidays and their genuinely isn't enough time to set everything up and at our school it's not big classes and we are lucky as we have TA's in each classroom you know it's not just one teacher in each class invariable it's sometimes even two, and they are still not able to cover the curriculum. And that's for a variety of different reasons, one they've got all this form filling to do, but two they've got all these behavioural issues going on , it's…."
18. Changes in response to GE	References to differences seen in behaviour and emotions in response to GE provisions	*but I do think that erm, just by being outside makes such a difference to the children, just their wellbeing, their, erm we've got one little boy who's out there today, he's a diabetic chap and he was quite a sullen little chap. Today he's bouncing fifteen cups on his head.* *I think the Year 5's, especially since Forest School has started which is only this year, the difference in there is amazing. I mean, one little girl wasn't very keen to join in, what's the point of this. Today she's been building dens, she was actually tidying up. Well she's very much, if you tidy up time she's quite keen to go to the toilet in the classroom but she was actually really happy to join in, no one said a word to her, she was straight there. When we first did sort of reflection, going round looking at other people's things and letting them talk about what they'd made and what they thought of it, she was very much, phew I don't get the point of this, and stood at the back. Now she was actually saying to a couple of other children, ah well you better come and look at mine then you can tell me what you think of it.*
19. Early Years Foundation Stage	References to education provisions from ages 0 – 5	*I remember x going from foundation year 1 and he was almost like oh my god this is out, I have to sit and do all the things I don't want to do anymore and I just want to go outside and play in the mud* *it's interesting the boys they reminisce now that there little sister is in foundation and they are like oh I remember when we got to do that, it was so amazing down there you get to play outside all the time, there is*

		games, and it's changed down there now, the focus, I think they are spending less and less time out there now and more time indoors in the classroom… *"the early years have got it nailed and then after then it's lost its way…"*
20. Emotions	References to feelings in (1) general or (2) response to being in nature	*"But I know a lot of them are very, very worried and err, but my daughter will come home and say we have this test or this test and talk to me about it and so there is obviously some anxiety until we diffuse that"* *"It had an impact they loved it and they couldn't wait to get outside – you know those children, particularly who never go outside, they loved it and you know coming back covered in mud and the happiness they sort of felt from that as they just didn't have that chance to do that…"* *"Erm if you'd have come 10 minutes ago, you'd have seen them, they just, the smiles the happiness. When it was said today, that you know half the children were going, the other half were staying, were the, they were just ecstatic the ones that were going to be going out to do Forest School. You're the best teacher, you're the best, but it's not actually me because they're actually doing it themselves."*
21. Engagement	References to being in the present/ in the moment in nature	*" You are both fully engaged and you are in the moment."* *"she didn't want to do those things, wanted to be to be in her own environment dangling her legs off the tree, she didn't want to engage in that messy, loud play that the other children were engaged in."* *I mean evem when they are sat at the table you are not engaged as you are preparing a meal…you will not be fully engaged but when you are out on a walk you are engaged, you are both fully engaged and you are in the moment*
22. Equipment	References to resources needed for the GE provision	*"Err when you get the axe out the children's first reaction is always "wow it's an axe, are you gonna let me use that?" And I'm like "yeah I am gonna let you use an axe, because you*

		are going to learn how to use it safely" *"I would like to have a woodland! I want to plant 1000 trees! Umm."* *"yes, and we have things where a lot of children on days where they should bring coats they don't. Its only when it's really cold and we insist that they bring them…. And there's some days where the weather forecast says it's going to rain later and they still come without a coat, and you think – why? You know, some of the parents haven't necessarily taken it on board that they need to send their child with a coat. Or, the child says, I'm not taking my coat, and the parent doesn't insist they take it… So that's another barrier – you think okay id like to go outside, and I know its slightly drizzling but I've got a few children who haven't got their coats – am I going to take them outside and they get really wet in their school uniform or do I not go? What do I do?"*
23. Evolution	References to instinctual behaviours	*"That survival instinct kicks in, I don't know the outcome mentally, but kids are naturally resilient, I do think there is this animal instinct within them and I think yeah, I am sometimes surprised when you hear traumatic things children have been through they have coped."* *"boys particularly need to be outside, whereas the girls if you wonder through schools are in huddled together in groups, whether that's under an awning, or wherever they sort of come together whereas the boys are literally like puppies, you drop beads from a height and they just scatter…."*
24. Executive functioning skills	References to developing or using memory, problem solving, concentration, flexibility of thought or impulse control in nature	*"Cos you can climb trees and you can work out how to get down"* *"because you are not like sitting next to like loads of other people and they are all chatting t other people, and you can concentrate more because you are outside and it's quieter"* *"The others were all keen to go and, some of them did run, we've got some boys that are very keen to run and some of the girls, they just walked round, but they were still exercising moving and they came back and then they were focused to write."*

25. Freedom	References to feeling free, to being able to make choices, to have restrictions loosened or lifted	*"....think it makes you feel free as you can just be running around all over the whole place, or you can do press-ups ,normally you would do exercise outside so it makes you feel free if you are outside…"* *"yeah, because you don't have any care sort of any control you don't have to worry"* *"And that choice, the freedom to say, "well we've done the thing I planned, and so what else is there to see?" and then guiding them to make that decision – "we are going to climb a tree and that's what we are going to look at"* *"...cos actually, particularly children today don't get a lot of choice, they get home or they come to school and everything is decided for them, you know, somebody else has made a decision about what they are going to learn, someone else has made a decision about how they are going to learn it, they get home and then you know, it's clubs, or after school or tutoring, you know, they don't have any element of decision making in their lives, or very limited, and so when they get put in a situation where you say "here you go there's a space, off you go, make a free choice" some of them find that very difficult , some of them just make the most of that fact that they've got some space and some freedom. If you then put them in an environment where it's different to their normal every day, it just gives them that opportunity to do something."* *"Quite scary, quite scary. For anybody really. I think if you take away the boundary of the walls it automatically gives them freedom. Although you set boundaries there's a boundary outside that they're not allowed past the, the trail, fitness trail, so there is a boundary there, but that's the only boundary –"*
26. Green exercise leaders	References to the types of practitioners who lead green exercise provisions 1. Forest school 'purists' (staff who	*"So that's what, so she did the training in November for a week, bless her. She was outside all the time, all weathers. It was one of the coldest weeks of the year. Erm, and she's going back to do her, and she's doing all her fire and tools." – (Forest school purist)*

	are trained Forest School leaders) 2. Goodwill greeners (volunteers who are passionate about nature and supporting children to get involved) 3. Reluctant recruits (staff who are not confident in, or do not like being in nature)	*"just let them jump, they're fine. And, um, I, I always tell them, this is just one of the things that stuck with me from one of the trainings, it was a, it was a big conference with all different forest school leaders and we had a whole, a man come in and talk about risk and allowing children to have risk and he said about this video that he watched, and it was back in the 70s, and it was, they had a concrete surface and a soft play surface and they went up to the top of a slide and they dropped it on the concrete surface, a plate, the china plate, and the break, plate broke and then they dropped it off of the slide to the, um, soft play surface and obviously the plate didn't break and he said the problem with this image is that we all think that children are china plates." (Forest school purist)* *"I love gardening, and when I started here there was another teacher doing it, and she didn't need any help at that time, and then she left and another teacher took over and asked me if I'd like to help, and I said yes. So, the teacher ran it and I helped." (Goodwill greener)* *P: "Barriers that we have had while I've been doing it and there are certain, I've worked, I've worked with a Year 2 member of staff who's not here, um, at the moment, that she was, I, she was, I don't want to go near it, I'm not going to just go over there."* ***I: "Interesting. It was that strong for her?"*** *P: "Yeah. Because she, she felt that they were gonna, going to fall. So she –" (reluctant recruits)* *"Yes. Only three hours in the snow, so. We have done forest school in the snow as well and it's magical, so. It really is. Erm, it tends to be the adults that don't have the same resilience as the kids really. Yeah."*
27. Getting dirty	References towards coming into contact with dirt in nature	*"I do sort of in the summer and sometimes in the winter. We were like running around in a really muddy area and I sort of lots of water and we were sliding down mud slides."*

		It had an impact they loved it and they couldn't wait to get outside – you know those children, particularly who never go outside, they loved it and you know coming back covered in mud and the happiness they sort of felt from that as they just didn't have that chance to do that… *I think that depends on the parent, some parents are happy to go out with their children and get muddy and climb trees and have fun some parent don't – I've seen children that walk around with a bottle of anti-bacterial gel in their pocket on a permanent basis n case they get slightly dirty or touch something which isn't completely clean – it's something that society has created in our psych and somebody don't have balanced view of it or understand it.*
28. Interactions with others	References to social connections in general and/or in nature	*"sometimes I go out with my mummy and daddy and friends and we do nature things together"* *"they are not as close to nature as I am. So its really hard to play with them outside because they go round chasing things…"* *"sort of because your all together you can actually talk to each instead of being in separate rooms, you can talk to each other".* *"because no one talks anymore I don't actually spend time playing with my children or kicking a football around"* ***I: "you mentioned that you have lovely conversations…. Why do you think that is?"*** *P: "I don't know, it just flows more doesn't it, I've always found that, I suppose growing up round here I've always remember going on walks with my Parents and having those conversations…."* *"yeah cos we got to chat when we weren't doing anything, and find out more things about each other, we got a chance to chat and get to know each other…"*
29. It's just logistics really	References to barriers to accessing GE	*"…well that's a lot isn't it? I mean even with forest schools, that's great for teaching resilience and you know*

	(money, time, training, value)	*building that strength outside is fantastic, but you realistically… I was a teacher that taught forest schools and I was allowed one lesson a week to go out, I had no planning time, how did I build, I didn't even have a forest school, I didn't have a mini bus, I mean how are you expected to sort of build things you don't have, I spent my Easter planting willow!!! (all laugh) I know! It's ridiculous!! But I did because that was the only way we were going to have a forest school is if I was going to build one!"* *"I think so, cos anything like that , any programmes you've got, you know they want them out whole days every week, for the whole year, well you know if you're in a double intake year and you're allowed one morning a week, and can only take 15 children they're not actually getting it until every 4th week, and you aren't able to do it to it's full potential, in something like that as a class teacher…"* *"yeah…. It's just logistics really"*
30. Keeping safe and taking risks	References to concerns about safety and or/taking risks	*"I think it makes them, they are always worried, always on edge, no worried is the wrong word, they are always aware, so for example when we went to black park we fed the ducks first and we fed them cat food, a perfectly clean safe, sanitary and actually the food safety standards for the product ion of pet food is actually higher than that for humans which is amazing (giggles) but one of the children wouldn't actually eat her food after she had touched the cat food because she felt she was unclean and she put thing sin place which meant that, like putting he gloves on to eat which have been stuffed in her pocket, were actually much less hygienic when eating her sandwiches and it's those decision that they make…"* *"Because we are still on school site as soon as you take them off site, their risk assessment takes over a lot more, because although our risk assess where you going, them making that decision to go and look at a tree and working out whether that's a safe tree to climb or not, they've been given the tools to work out if it's a safe tree or not, here they haven't got that facility*

		as we haven't got any big tress that are climbing trees so, and that risk assessing is actually a really really important life skill for them and one that they don't develop as it's done for them, either but their teacher or their parent or whoever they're out and about with." *Yep – you have to trust the children. When I was training, my forest school leader who worked with young adults 16-18 years olds was most of the group that our leader worked with, and she said that she had some groups that she would have to take out for a year before she could trust to give them a whittling knife, because, she didn't trust that they wouldn't make that wrong decision, that they wouldn't make that wrong risk assessment choice. So, she spent a year doing trust building activities with them, in their woodland before she said, "actually no, I', happy with your safety level now"* *"I think it's a bit of a lot of things. I do think, I think some parents, even though they want to keep their children safer, they're not spending as much time with their children. And by time I mean actual physical quality time."*
31. Letting go	References to letting go of structure/ the need to be safe, and/or letting the child take the lead	*"Not in the same way, because team building in the hall is in such a controlled environment, where as that was something that they did spontaneously, I hadn't intended them to do that day, it was through one of them saying 'oh look' and having that room to explore…."* *And that choice, the freedom to say, "well we've done the thing I planned, and so what else it there to see?" and then guiding them to make that decision – "we are going to climb a tree and that's what we are going to look at"* *"You don't have that freedom. And actually I think it took me a long tome to lean that thing that actually sometimes, just letting them explore and letting and letting them have that chance to explore that environment means they have they chance to learn from that an through their choice,"*

		"laugh... I think a lot of the other teachers in the school think I am a bit mad, especially when it comes to the big things. I mean, I don't think of a bow saw as a big thing, but other teachers look at and go "whoa, you're not gonna give one of those things to the children, are you?" and I go "yes, absolutely!" *Err when you get the axe out the children's first reaction is always "wow it's an axe, are you gonna let me use that?" And I'm like "yeah I am gonna let you use an axe, because you are going to learn how to use it safely"* *"I think people were scared of if they let children play, they're putting ownership on the children's learning and I think teachers, practitioners can sometimes be scared that, actually, without them drilling it into them, they won't learn it."* *"Freedom, the freedom, there's no right or wrong way of doing anything. That's why take things up to forest school in the end. To be able to build up resilience, you've got to explore things that's got, not, everything's had, got to have an end product now, they've got to get away, schools and everything, they've got to get away from the end product and actually do the process, and the process of doing things so they can explore, they make mistakes, they can find, they can discover. Those sort of things. Once you've got a product, you're almost setting a child up to fail."*
32. Mental health	References towards beliefs and experience of mental health	*"well I think we need to look in crystal ball and see that mental health is just this ticking time bomb, and I just think that we need to be addressing it and we just brushing it under the carpet…"* *"I do worry about some of them and their mental health…I really do, cos I feel that a lot of children they are excited cos it's coming up to the holidays and they are going to be able to sit down and play on their computers or their laptops or their I pads or whatever, and I think, how that must*

		affect their mental health, you know, it fills me with horror!" *"We have got a lot, I have got a few children in my class who get angry very quickly, get emotional very quickly and find that very hard to control which does affect their work and does affect whether they are able to carry on with their work. If something hasn't gone their way then it can be very hard for them to get over that and it can mean that they're even storming out the classroom or putting their head down completely and not carrying on."* *"And the diagnosis process. Like I have got a child of who I suspect there might be something but, you know, (a) is it for me to say anything, (b), um --* *F Hmm.* *F Because behavioural stuff I, I, you know, I can, I can go and start talking about that but a mental health issue we don't really have the lines to go down.* *F H-hmm.* *F Um, a lot of people, people, mental health still in the public is very, you know, is con, there's a confusion about what it is. It gets blurred into other things".*
33. Novelty	References to new experiences in nature	*"it was brilliant!!!!!"* *"We roasted marshmallows and had chocolate!"* *"I liked that we got to make dens"* *"it's really exciting going outside and its full of adventure and you don't actually know what's going to happen next"* *"But I think the added value of the tools, I mean remember cutting my first piece of wood and with a bow saw and it's pretty amazing, the sense of achievement, I've never done that, that's always what, not what the men do, but I've never done that."*
34. Ownership	References to being given autonomy and/or responsibility	*"Yeah, it's interesting, it's, it's lovely to see how they mature, and, and the risks that they will take, when like Reception they might be oh, but by Year 2 they'll be jumping off everything and they're quite happy to get near the fire, and, and they sort of grow with it. And*

		they have a, a sense of ownership and pride in there, you know, that they can, you know, so yeah. And I love that they go, do it every year." *"But a lot of the time it's, it's down to the children to almost set and they know, they kind of, I think they feel relaxed enough to know what they can do and what they can't and they are reminded if they're doing something that they might think is dangerous. Or they come and check, they, you know, can I do this? And then I think after a few times, well, it's not a, I'm a firm believer in a sense of if a child comes and asks me a question, can I do this? Well, what do you think?"* *"There is. I mean there are, you know, obviously we are, we do have assessments, we do have the accountability but as long as the, we get there –"* *"Give them, yeah, give them the licence but not, erm, you know, if it's having an impact and if they, you know, they, they need advice it's enabling them to talk about it and it's having that almost collegiate atmosphere –"* *"I think people were scared of if they let children play, they're putting ownership on the children's learning and I think teachers, practitioners can sometimes be scared that, actually, without them drilling it into them, they won't learn it."*
35. Parenting	References to parental beliefs, actions, and mesosystem interactions	*"…but then I think parents are under so much pressure working, even if they're not working there's the homework the reality is, are parents going to be spending that time doing cooking with their children? No – they are under that pressure to do it all too"* *"…so then it's creating a further stress for the parents as you feel you can't actually support your children with what they need and that creates tension…"* *"Ummm, I suppose it depends what sort of parent you are? Ummm for me, ummm I am quite horizontal (laughing) so...err so for me when they have had SATS and things like that and little tests, don't worry about it. But I know*

		a lot of them are very, very worried and err, but my daughter will come home and say we have this test or this test and talk to me about it and so there is obviously some anxiety until we diffuse that." *"I think it varies, massively, as we have some parents who actively take their children out and climb trees and they go walking and are out in nature all the time and then we have some parents who have families who are so worried about safety and bacteria and germs and things that they never do anything unless they know it is in a clean and… well, what they perceive to be a clean sanitary environment."* *"….So they never make those mistakes, because someone else is already controlling most things. So, because they never make those mistakes, and they never got to make those choices, they never learn how to, and it shows in even little things like, they are talking about brining how to handle money into education. And I'm like "that's really daft – do parents not give children money in shops anymore so they don't know how to handle money"? clearly not."* *"I've got things like, you have children to spend time with them, I know we all want a break, but I feel like – I know a lot of parents they just want peace and quiet, and I know a lot of parent some cook different meals for different people to keep the, and I'm like 'why?'"* *"yes, and we have things where a lot of children on days where they should bring coats they don't. Its only when it's really cold and we insist that they bring them…. And there's some days where the weather forecast says it's going to rain later and they still come without a coat, and you think – why? You know, some of the parents haven't necessarily taken it on board that they need to send their child with a coat. Or, the child says, I'm not taking my coat, and the parent doesn't insist they take it"*

		"I think with certain parents it's a lack of effort and I mean that in the nicest way possible but I know there's a lot of my children that instead of going outside and playing, and they want to do that because they want to do that at school and they want to go and do their mile and everything. But when you hear about them in the evening, Nile's playing on the Xbox or you hear about their weekend, no we stayed in and we watched TV or we did this. So I think there's a lot of parents aren't, I don't think there's the same effort as like –" *"Yes, I do find some of the parents do share more with their children than they should do.* *F Hmm.* *F And so children are learning things at a lot younger age that you wouldn't really want them to know."* *"I mean and it's just, it's a symptom of, I mean I work full time, I, we all feel guilty about not giving our children enough time, and we're all so busy, we're all so busy."* *"I think it's a bit of a lot of things. I do think, I think some parents, even though they want to keep their children safer, they're not spending as much time with their children. And by time I mean actual physical quality time."* *"Yeah, how they want it run. I think some schools have quite a lot of pressure from parents so we run stay and play sessions throughout the year, every half term we have a stay and play and we talk to parents about all your benefits of learning through play –"*
36. Physicality	References to using the body	*"and they often up down, up down, up down, before we've even set off…and, because they've just got bags on energy they need to get out of them"* *"F I have got a couple who said they couldn't.* *F They always had the option of walking, jogging or running. And I have seen more of mine --* *F Yeah.*

		F That were walking to begin with, have started to try and jog it a little bit"
37. Demands	References to feeling pressured and or/stressed in response to demands being placed on a child, teacher, parent or wider system	*"but then I think parents are under so much pressure working, even if they're not working there's the homework the reality is are parents going to be spending that time dong cooking with their children? No – they are under that pressure to do it all too.."* *"We put a lot of pressure on our children to grow up and understand everything and actually, they are just children."* *"So, we expect them to do a lot, and they're not ready, which creates the problem of them feeling like they can't do anything. Which is why we have to build their resilience, because they can't, they're not ready to do it."* *"I like to think I did, and I feel I did the right thing by my children, so I can only speak for myself. But I think the pressure to be the same as everybody else, it's like they do, they change the 11 plus thinking it will stop tutoring, rubbish, it still goes on. And obviously, as a school, you do not advocate it, you, you just tell them, don't worry about it. But, they all do, and they all think, well they've all got to do it, and you just think, but if, you're still only going to get about a third of the children through. Even now, we only get a third of the children through so – "* *"Yeah, how they want it run. I think some schools have quite a lot of pressure from parents so we run stay and play sessions throughout the year, every half term we have a stay and play and we talk to parents about all your benefits of learning through play –"* *"Ummm, I feel that its just, its just stressful sometimes, when you have everything put together, everything on top of each other and you need to try to get through it and sometimes it just comes to the end of the week when your just sat there doing homework because you didn't have time to do it in the week."*

		"I guess it, huh, I think they are intertwined but it depends on the relationship you have with your child, it could be quite separate but I think children in the home lead quite stressful lives cos I think parents a leading stressful lives, there are stresses to juggle family life, work life, be this mythical being, and um so I think there is a lot of underlying stress and I think children in the school environment have a lot of pressure to achieve, I don't think academically that's such a bad thing but at a younger age"
38. Progress	References to academic attainment, assessments and measuring progress	*"it's like with SATS, I think it's ridiculous, I was saying to my sister and she was like, you know, xxx, you and I would just fail this, so why do you want to get your child to study something they are going to fail?"* *"I don't know I have mixed feelings, I think if they are used properly it can be a positive and stop children slipping through the nets and they can be supported, but obviously that's if it's used properly, you know, okay, we can see this child is lacking in these areas and we need to….focus on those, if it's just an exam and well there's the results, so it's about how you use the information, whether it's to better the individual, to give them the support and help they need to make sure they have those solid foundations which will allows them to build on those concepts to manage more tricker things, but I see it more as a tick box…"* *"F: I did child minding years and years ago and everyone started (complaining) as the paperwork is so much and in the end you aren't concentrating (on) the children as you are just doing observations…"* *"There's, you know, because actually it's thinking about who are we, who are we making evidence for? What, you know, if you're just doing it for us then what's the point?"* *"There is. I mean there are, you know, obviously we are, we do have assessments, we do have the*

		accountability but as long as the, we get there –" *"And we need to, the government want us to get these results, we need to well for SATS, we, and, you know, SATS in itself is a massive topic of causing distress and… "* *"….Problems to mental health. Um, but I think schools are worried that, from an, their top, from the top, they think, we need to get this result so we're going to put our money and our funding into extra maths or extra reading or extra writing not the nurture."* *"yeah its emerging, secure, exceeding and developing, and you have some children who are like you are emerging all through year 5 and I will say to them look you are getting better, you can do this, this and this now, and obviously I'm not going to say to them "look, this is the level you are at" but it goes out to parents and they want to know, and the kids want to know, and they do tests and they want to know how they did… I think it is hard as it's so hard to say look you've moved on, as they are constantly emerging…"*
39. Relaxation and reflection	References to feeling calm in nature and restoration, and/or revisiting actions	*"And we'll go and just lie down and look at the sky. Mainly because I just want to lie down and look at the sky (<u>laughs</u>) er, but I used to do a lot, I actually used to do it a lot more with my class last year because my class this year are particularly naughty, um, and will start being silly. But that always really seems to bring everyone's energy levels down a bit and just, kind of, gives them a moment".* *"And it's, it's probably the opposite of a, a calming experience for them. But when you take the competitive element out, I think that it can have a lot of benefits –"* *"Yes, oh yes, thank you, yes. And so that's nice and then with the reflection area, that's lovely, because it's so nice for them to have somewhere quiet to sit."* *"When we first did sort of reflection, going round looking at other people's*

		things and letting them talk about what they'd made and what they thought of it, she was very much, phew I don't get the point of this, and stood at the back. Now she was actually saying to a couple of other children, ah well you better come and look at mine then you can tell me what you think of it." *"Umm, I think being outside is quite relaxing, because sometimes if you are really stressed it can be like to get some fresh air and it can clear your mind"* *"So, she's using it without her even realising. She's taken on board the reflection, she's using it herself to get someone else to look at her work, to give her an opinion."*
40. Resilience	References to responses to adversity	*"sometimes I get a bit worried, during the middle… umm it makes me feel I'm behind and I'm not very good at running…. I carry on I say to myself I'll keep going I don't want to give up"* *"Resilience is like you know a child's building block of how emotionally safe they are and I'm just thinking about children from different backgrounds, if they come from a harsher background will they still have the same amount of resilience or can they get that from …"* *"Umm I think it's just that ability to bounce back and that inner strength in the classroom to keep going when they find something hard"*
41. Sensory experiences	References to using the senses in nature	*"I love honey suckle it smells really nice"* *"whereas I love it, I'm look put the wellies on and splash in the puddles…when was icy over Christmas there was ice all over the puddles and stuff like that – it was a visual experience"* *"I think it's the sunlight that definitely get's me I've seen a view studies on tv where they've talked about the wave length of the sunlight, people who, my husband, the reception noticed this, when he had cycled to work cos he'd be much more 'ding!' alert, um, and he felt more awake and now research is showing that if you walk to school and*

		you've got that blue light and the sunlight sort of 'waking you up' whereas children who are driven to school don't get that sort of opportunity and I think it does, if they are stuck in doors in the afternoon get them outside for 15 minutes and they will get some 'ding!' and then they will be more ready for lessons."
42. Space	Reference to the sensation of having room to move in nature	*"I do a lot of running, so I have more space outside and if you play football inside you can fall over and bang your lg very hard, outside the ground isn't as hard".* *"I like nature, because you have more space to run around… that's good because you don't need to go in corridors and little rooms and you can just go outside and run around and play some comes"* *"Because you can see what is around you and there is a lot more space to be free."*
43. Sustainability	References to keeping GE provisions going over time	*"we haven't got a trained forest school leader and I know there are schools they do that, but I believe one the reason x maybe hasn't done it – I don't want to speak for her, but maybe some people don't do it is because as soon as you've got somebody trained they go and move elsewhere, and you've got nobody else trained"* *"And then she left, and I asked my other colleague if she would like to help me, because I can't do it on my own, there's just too many things happening, and then I'll think, oh that's a bit stressful and it's supposed to be fun."* *"And (teacher name) and I have subbed it a bit, but it becomes, it's one of the most expensive clubs to run, unfortunately."*
44. Support	References to providing help or receiving help from others	*"There was support as much as there was support, and we have behavioural support works coming in and saying "do this, and do that" but, realistically, you can't do , the person is a teacher and you know if you have one other support and you've got 29 other children can you realistically put all of that in place? No, you can't."*

		"so the more confidence ones tended to go and just explore themselves and the ones that weren't that sure sort of lingered around you until they were more confident" *"it's encouragement, yeah, so its consistently saying to them every lap that they do, as they come into to finish that lap, saying that was brilliant, well done, look what you've done, you didn't think you'd be able to do that at the start…or that's brilliant, 2 more to go until you've done more than ever before – so constant encouragement, not praise, not you're an amazing runner, but it's very much the case, well done you've pushed through…"* *"Umm.I think being outside really helped them and they were all good at slightly different things and they all relied on each other different things "*
45. Systems	References to Bronfenner's ecological systems – micro, meso,exo and macro	*"….Problems to mental health. Um, but I think schools are worried that, from an, their top, from the top, they think, we need to get this result so "we're going to put our money and our funding into extra maths or extra reading or extra writing not the nurture…."* *!"yeah, pressure on the teachers and the kid are basically there to show that teachers are doing their job properly (laughs) and I'm sorry, but that's what it is!!"* *"F: it's money, it's budgets,* *F: but there is the money…. Maybe it's the organisation of the school…."* *"I like to think I did, and I feel I did the right thing by my children, so I can only speak for myself. But I think the pressure to be the same as everybody else, it's like they do, they change the 11 plus thinking it will stop tutoring, rubbish, it still goes on. And obviously, as a school, you do not advocate it, you, you just tell them, don't worry about it. But, they all do, and they all think, well they've all got to do it, and you just think, but if, you're still only going to get about a third of the children through. Even now, we only*

		get a third of the children through so –" *"Or don't understand actually it's OK. I think it's for me I personally feel, erm, that there has been a massive shift change in society due, and due to the fact of lots of social mobility, people going away to university maybe when there wasn't, because there was a massive push several years ago –"* *"I think, erm, we're in a very good position. We were Ofsted'd last year, maintained our good. We've moved into an academy. We're being recognised as being, having some good, great practice going on. Erm, and also because of reduction in workload that I've taken away through marking, erm –"* *"So, I think the system is massively, it goes against the children who are very, very young and boys, they just need to be at home playing constructing."*
46. Technology, mass media and the internet	References to devices used by children or websites	*"I hate technology, I think it's the worst thing that could have ever happened because no one talks anymore I don't actually spend time playing with my children or kicking a football around as they would rather be in their room or on twitter I pads or listening to music or even flying a drone! It's seem gone outside, technology has gone outside – what about flying kite!"* *"I find the opposite, with my son, because he is dyslexic when he goes on the computer it's the one thing that he is really good at, he is much more inclined, that's how he las learned to spell as he learned to google it, he wants to go onto u tube and find all these different things"* *"Yeah, I have, I have had it when I have taken my nephew to the park and you have seen and I have heard people on the phone screaming and swearing and it's like you're in a kids' park and they're hearing this, you know. And, so they pick it up from everywhere and then it all comes into school and then children who maybe aren't exposed to it, get exposed to it that way, you know."*

47. The elements	References to the weather	*"Yes, and it can be cold and wet "* *"I like the summer and the winter because in the winter we have decking and it gets really slippy and I put my boots on and go on it. But in the summer I like to go on the swing and the trampoline and I like to climb the trees."* *"Yes. Only three hours in the snow, so. We have done forest school in the snow as well and it's magical, so. It really is. Erm, it tends to be the adults that don't have the same resilience as the kids really. Yeah."*
48. Trust	References to the belief in the abliity/reliability of someone or something	*"And actually the difference it makes that you put the trust in the child to do that, and their reaction to being given that trust, and learning the fact that it's a tool and it's there to do a job, has changed those children's views and outlooks on that sort of thing,"* *"I think there needs to be a relationship so that they can trust you with their mistakes so you can help them, but there's also that line of firmness where you know full well they can do it, and it's well do I help them?"* *"Yes, yes, yes, yes, yes, so I think that's, you know, that's another positive thing for them, is that yes, I don't tend to treat them as kids very much."*
49. The forgotten child versus wrapped in cotton wool	References to children growing up too soon, and or/being left alone or children being over protected	*"I think it's a bit of a lot of things. I do think, I think some parents, even though they want to keep their children safer, they're not spending as much time with their children. And by time I mean actual physical quality time."* *"It's a bad thing, she is old before her time, she hasn't had a chance to be a child."* *"I, we all feel guilty about not giving our children enough time, and we're all so busy, we're all so busy."* *"No, that's me wrapping them up in cotton wool! And hoping they stay young for as long as possible"* *"and that risk assessing is actually a really, really important life skill for them and one that they don't develop as it's done for them, either but their*

		teacher or their parent or whoever they're out and about with." *"I think just that, it comes from that parental worry that "I must keep my child safe, and the way I keep them safe is y doing everything for them and controlling everything around them"*
50. When things don't go right	References to making mistakes	*"Well if they get an answer wrong some children will be devastated by it and think, well I have done everything right, I shouldn't have got it wrong and can be quite hard on themselves and find it hard to turn it around and try it again which –"* *"Can hold them back in some ways because it means they're not ready to give it another go, get it right and then move on to the next one. They're still stuck on that one that they don't want – "* *"erm, if they make mistakes what can we do, how can we build from it, things that they find difficult how can we learn from them, that kind of thing."*