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Physical Literacy**

**Anxiety and Outdoor Education: an analysis of the
impact of Forest School on the anxiety levels of
young people with autism.**

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Abstract

Background

The aim of this research was to understand how taking part in Forest School and slow adventure affects anxiety levels in young people with ASD.

Method

Nine secondary school students, six boys and three girls, all of whom had a diagnosis of autism and anxiety, took part in the intervention, which consisted of an 11-week Forest School programme, designed to include each of Aked *et al*,’s Five Ways to Wellbeing. Mixed methods were used to collect data. Quantitative data assessed anxiety levels of the participants, from their own and the teachers’ perspectives, using the ASC-ASD questionnaire. Descriptives and univariant analysis were used. Student interviews were conducted to see how they felt about the project. Teacher interviews additionally discussed if it had affected student anxiety levels and the school atmosphere. Qualitative data were categorised using the Five Ways to Wellbeing.

Results

Questionnaires showed no statistically significant drop in overall anxiety scores ($p=0.222$ and $p=0.289$ respectively). However, there were significant impacts on anxiety subscales: in the student questionnaires for separation anxiety ($p=0.017$) and in the teacher questionnaires for performance anxiety ($p=0.021$) and anxious arousal ($p=0.05$). There was a reduction in reported negative behaviour ($p=0.025$). Participants valued **connecting** with people and **learning** new skills, confirming the value of these two of the Five ways to wellbeing, while teachers noticed the positive effect on school atmosphere.

Conclusion

Although there was no statistically significant drop in overall anxiety scores, this study suggests that activity in nature can help to reduce particular anxiety subscales and negative behaviour, and therefore should be seriously considered, especially by ASD-specialist schools, as a part of the curriculum. Reduction in separation and performance anxiety may have been supported by; building a sense of community and a power shared pedagogy. The difference in scores between genders, may be down to a difference in interoception.

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Glossary of terms

Term	Acronym	Meaning
Neurotypical		The list of assumptions about ideal rationality, as these are often conceived in terms of cognitive, social and sensory behaviours (Rosqvist, <i>et al.</i> , 2020)
Neurodivergent/ neurodiversity		The perceived differences seen in cognitive, affectual, and sensory functioning compared to the majority of the population (Rosqvist, <i>et al.</i> , 2020).
Antecedent, behaviour, consequence	ABC's	The ABC model aims to combine descriptive and experimental data and is a helpful tool to understand a students behaviour (McMahon, <i>et al.</i> , 2019).
Diagnostic terms		
Autistic Spectrum Disorder Autistic Spectrum Condition	ASD / ASC	A diagnosis of a group of neurodevelopmental conditions that affect a person's ability to perceive and react to social information (Courchesne, Gazestani & Lewis, 2020).
Special Educational Needs	SEN's	This term applies to any person or child that has learning difficulties or disabilities where special educational provision needs to be made from them (Department for Education and Department for Health, 2015).
Educational Health Care Plans	EHCP	A plan put into place when current provision by a student's setting from their own resources are not enabling the student to make adequate progress (Department for Education and Department for Health, 2015).

Diagnostic and Statistical Manual of Mental Disorders	(DSM)-5	The official assessment manual in the USA. While it has no official status in the NHS its prominence in the scientific literature means that the DSM diagnostic criteria are referred to in clinical guidelines in the NHS (NHS England, 2023).
Attention-Deficit Hyperactivity Disorder	ADHD	A common neurodevelopmental/behavioural disorder, characterised by difficulty in maintaining voluntary attention in the face of both academic and daily activities, together with a lack of impulse control (Bores-García, <i>et al.</i> , 2024).
Anxiety based terms		
Trait anxiety		A stable personality component, it also refers to an individual's differences in anxiety proneness. People with different levels of trait anxiety differ in their perception of stressful situations and therefore respond to situations with elevated intensity (Weinberg & Gould, 2011).
State anxiety		Situation-based anxiety and is usually a extension of trait anxiety (Weinberg & Gould, 2011).
Generalised Anxiety Disorder	GAD	A persistent feeling of anxiety or dread, which can interfere with daily life. People living with GAD experience frequent anxiety for months, if not years (Department of Health & Human Services, 2014). This is considered to be more extreme than trait anxiety.

Anxious arousal		Also referred to as somatic anxiety, characterized by immediate vigilance and physical anxiety symptoms including shortness of breath and increased heart rate (Weinberg & Gould, 2011).
Separation anxiety		An exaggeration of otherwise developmentally normal anxiety. Consisting of worry, and dread of the actual or anticipated separation from an attachment figure or home (Feriante, <i>et al.</i> , 2023).
Performance anxiety		Feelings of anxiety when having to perform a task in front of or with other people
Autistic related terms		
Stimming		Self-stimulating behaviour includes arm or hand-flapping, finger-flicking, rocking, jumping, spinning or twirling, head-banging and complex body movements (National Autistic Society, 2020).
Interoception		One of the eight senses, the ability to notice and understand internal sensations such as tense muscles, rumbling tummy or heavy eyelids and translate these into emotional meanings, such as anger, hunger or tiredness (Hample, <i>et al.</i> , 2020)

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Chapter 1: Introduction

The aim of this research is to start to understand whether taking part in Forest School/ slow adventure, and spending time outdoors in nature, affects anxiety levels in young people with ASD (Autism Spectrum Disorder), helping them manage their anxiety in ways that are healthy and accessible.

This introduction lays out the context of my research. Firstly, the nature of the school from which the participants were drawn, and the intervention itself, are explained. Secondly, the scale and definition of SEN in the UK is noted, and how this applies to the students who took part in my study. Thirdly, the principles underpinning the study are explored. The overarching framework is the 'Five Ways to Wellbeing' developed by Aged, Marks, Cordon & Thompson (2008), and this framework is used to structure the qualitative results. The related principles which led the planning of the intervention are those of Forest School and slow adventure, so these too are explained.

The participants and the intervention

I work in a secondary special needs school, alongside my academic studies, and the school leadership agreed that my research could benefit our students and therefore facilitated the intervention. The school is a small local authority funded, special needs, independent school in northwest London, that provides educational provision for 20 girls and boys between the ages of 14 to 19 (years 10-13), specialising in provision for students with autism. The school's focus is to get the young people the best results they can, while giving them the skills to move back in to mainstream education such as school, college or university, or apprenticeships, as well as contributing positively to society. Very many of the students also struggle with anxiety and this is identified as a challenge for them on their EHCPs (Educational Health Care Plan). Seeing how anxiety levels can affect a student's progress and their future life chances, led me to investigate whether we can use the outdoors to help reduce anxiety in young people with special needs, as much of the literature on the impact of outdoor education and recreation focuses on neuro-typical children (Friedman, Gibson, Jones, & Hughes, 2024).

The intervention which forms the central feature of this research, ran over the summer term, from April to July 2023. The 9 participants who met the threshold of attendance at 60% of the

10 sessions, experienced a variety of activities, mainly at a local reservoir, including bushcraft e.g. fire lighting, slow adventure e.g. canoeing, and volunteering e.g. forest management.

The experimental hypothesis (H_1) is that participating in Forest School activities has a positive effect on self-reported and teacher-perceived anxiety among young people with autism, demonstrating clear value to educators of those with SEND. The null hypothesis (H_0) for this research is that time in the outdoors and in nature has no statistically significant impact.

SEN in the UK

The scale of SEN in the UK is significant, and growing. The number of children and young people diagnosed with SENs (special educational needs) or put onto EHCPs has been rising in the United Kingdom. Data from the Department of Education in June 2022 put the number of children with SEN at 1.49 million, an increase of 77,000 from 2021, with 1.13 million children receiving SEN support, up 4.3% from 2021, and 355,566 student on EHCPs, up by 9.2% from 2021 (Department for Education, 2022). The dominant needs identified for those with SENs were speech, language and communication, with 25.1% of all diagnosed students. For students with EHCPs the dominant need identified, at 31.3%, was ASD (Department for Education, 2022). This trend shows the need to investigate how nature and connecting to place as opposed to entirely classroom-based learning might help not only neurotypical children but also those with SENs.

SEN incorporates four broad areas of need: communication and interaction; cognition and learning; social, sensory and/or physical; and social, emotional and mental health difficulties, while to have an EHCP in place, a young person will have more complex needs (Department for Education and Department for Health, 2015), which may be across multiple domains and include, but are not limited to: high risk to self-and/or others, physical or mental health, learning disabilities, communication, and substance misuse (HM Prison & Probation service, 2019). All the young people attending the small urban SEN educational establishment that took part in this project have EHCPs, so all are contending with multiple combinations of the above needs and domains, and all have a diagnosis of ASD.

Underpinning principles: ‘The Five Ways to Wellbeing’

The research used the overarching framework of ‘The Five Ways to Wellbeing’ to give the programme its structure, as well as to organise the results. Aked *et al.* (2008) consider there to be five ‘ways’ (actions) to increase wellbeing:

1. **To connect**, with the people we interact with daily: family, friends, and work colleagues. Also to connect with Nature; since we are animals, being part of the wider natural world helps us feel connected.
2. **To be active**, taking part in all kinds of physical activity, either indoors, such as dancing, or outdoors, such as walking and gardening. It just needs to be enjoyable and fit your level of fitness and mobility.
3. **To take notice** and be curious. Catch sight of the beautiful, and remark on the unusual. Be aware of the world around you and what you are feeling. Reflecting on experiences will help you understand what matters to you.
4. **To keep learning**, try something new. Set yourself a challenge you will enjoy. Learning new things will make you feel more confident and be fun.
5. **To give**, do something nice for a friend or a stranger. Volunteer your time or join a local community group. Look out, as well as in. Seeing yourself, and your happiness, linked to the wider community can be very rewarding, and creates connections with the people around you.

These have been designed to be easy to add into daily life (Aked, *et al.*, 2008), which may explain why the framework has seen a widespread impact, receiving broad endorsement from, and application by, NHS England, Public Health England as well as a number of local authorities in the UK (Gillard, *et al.*, 2021). It is used as an advice structure for self-care to those working within the NHS as evidenced by the guidance given by NHS England’s Director of Nursing (Garratt & May, 2018).

Underpinning principles: Forest School and slow adventure

Forest School was developed as an early-years education provision (Cree & McCree, 2012), but has been employed as a pedagogical approach for students of all ages (Waite & Goodenough, 2018). Forest School came to the UK after a group of nursery nurses visited Denmark to observe their pre-school system (Cree & McCree, 2012), influenced by *Friluftsliv*, a ‘social, historical and cultural construct, that emphasises relationships between people, the

body, nature and identity and that derives content and meaning in and through a socio-cultural context' (Pedersen, 1999, quoted in Andkjær, 2012, p.123); a love for the outdoors and nature. In contrast to the Scandinavian outdoor nursery format, where there is no standardised training, Forest School in the UK has an accredited qualification (Waite & Goodenough, 2018), which has given the movement some traction in mainstream education, with teachers and teaching assistants being encouraged to gain qualifications so that it can be delivered in school settings.

The individual sessions of the intervention followed the principles of Forest School, and the slow adventure movement, as opposed to the more traditional algorithmic paradigm of outdoor education (Loynes, 2002) followed by most schools. Forest School is based around six guiding principles:

1. It is a long-term process of frequent and regular sessions in a woodland or natural environment, rather than a one-off visit.
2. It takes place in a woodland or natural wooded environment to support the development of a relationship between the learner and the natural world.
3. It aims to promote the holistic development of all those involved, fostering resilient, confident, independent, and creative learners.
4. It offers learners the opportunity to take supported risks appropriate to the environment and to themselves.
5. It is run by qualified Forest School practitioners who continuously maintain and develop their professional practice.
6. It uses a range of learner-centred processes to create a community for development and learning (Forest School Association, 2017).

Slow adventure can supply many of the same experiences that Forest School can, while differing in the delivery and context. Varley, *et al.* (2020) report that slow adventure should have some, if not all, of the following elements: Human/nature-powered journeys, physical effort, some cultural interpretation, environmental interpretation, practical outdoor skills, local slow or wild food and remedies, wildlife tracking or watching, storytelling, and broad inspiring of emotional connection with the outdoors.

Varley and Semple (2015) suggest slow adventure is a movement of exploration and reconnections with a forgotten relationship with the ground, through feeling, sensing and investing in place, community, sociality, and tradition, over time and in nature. This contrasts

with the dominant concept of ‘fast adventure’ that focuses on thrill (Varley & Semple, 2015), group-orientated, with self-reliance and leadership at its heart, which is critiqued by Loynes (2002). Loynes argues that ‘fast adventure’ – what he calls the ‘algorithmic paradigm’ – is problematic, as it is based on seeing the outdoors as an assault course. This concept of adventure has been the driving force behind both education and tourism for many years, driven by the historical British cultural attitude to nature and the outdoors and based on the dominant, western capitalist, post-renaissance paradigm (Loynes, 2002).

The guiding principles of Forest School, and the idea of slow adventure both share some similarities with the Five Ways to Wellbeing. They promote the use of the outdoor world and developing a connection with nature, they are holistic in nature, allowing the participant to exercise their mental side as well as their physical, and they encourage a participant to take their learning into their own hands.

Therefore, this research combines a range of elements. It draws together my experience as an educator in an SEN environment with the framework of the ‘Five Ways to Wellbeing’, alongside the principles of Forest School to develop an intervention to explore the impact of directed time in nature on anxiety among students with autism. The next section discusses the academic literature on the key themes relating to the study.

Chapter 2: Literature Review

This literature review will discuss research relevant in a range of ways to this study. The group of students who experienced the intervention all had special educational needs, specifically ASD and related anxiety, so the first section discusses the links between ASD and anxiety. The intervention was nature-based and aimed to reduce anxiety, so the context section is followed by an exploration of theories concerning nature and mental health, and then how research has contributed to our knowledge base on how nature can affect anxiety in general and for those with ASD in particular. Finally, the pedagogy of Forest School and the related field of slow adventure are discussed, and linked to the development of a sense of place, as the intervention was a series of Forest School sessions in the local area.

Special educational need and anxiety in young people with ASD

ASD's core characteristics will be discussed, as well as our recently revolutionised understanding of how it develops, how we diagnose it and how it can be accompanied with multiple other mental health conditions. Anxiety and its subcategories will be explored as it is one of the most prevalent mental health issues for people with ASD and therefore for the participants in this study.

ASD

ASD is a diagnosis of a group of neurodevelopmental conditions that affect a person's ability to perceive and react to social information (Courchesne, *et al.*, 2020). They are lifelong, and affect around 1.5% of the developed world's population (Provenzani, *et al.*, 2020). Within this broad characterisation, there is much diversity, and while the core characteristics - social communication deficits and repetitive and unusual sensory-motor behaviours - have not significantly changed since they were first described, they are now considered on a spectrum from mild to severe (Lord, *et al.*, 2018). A large percentage of those diagnosed with the most severe disorder will need lifelong support (Lord, *et al.*, 2018). This emphasises the need for positive strategies for dealing with the anxiety that is associated with the disorder.

ASD was first defined by Leo Kanner around 80 years ago (Kanner, 1934), but it is only in the last few decades that our understanding of the disorder has been revolutionised. Courchesne, *et al.* (2020) suggest that developments in our knowledge include, understanding that it is not

caused by parental behaviour, is unrelated to vaccinations, is not extremely rare, and is not absent in early childhood. It is also not caused by a single deviant stage of development, is not due to an abnormality in a single brain region, and in some people, is possibly not just a disorder of the brain (Courchesne, *et al.*, 2020). It is mainly an inherited, progressive disorder that manifests in the prenatal and early postnatal stages of child development (Courchesne, *et al.*, 2020) and can be consistently diagnosed from as early as 14 months (Pierce, *et al.*, 2019).

While we understand that ASD is caused by multiple genes leading to the maldevelopment of the cerebral cortex of the brain, and possibly multiple organs and tissues, early in prenatal development, and later in the wiring of the cortex (Courchesne, *et al.*, 2020) we are still unable to test for biomarkers, and therefore must test for it by behaviour (Lord, *et al.*, 2018). The single test laid out by The American Psychiatric Association, in the Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 criteria (American Psychiatric Association, 2013) is based on the two core features mentioned earlier. The DSM-5 also recognises that ASD can be accompanied by other disorders including genetic or psychiatric conditions such as fragile X syndrome or attention-deficit hyperactivity disorder (ADHD). To be diagnosed with ASD a person must have, or have had, difficulties in all three areas of social communication: deficits in social–emotional reciprocity, in non-verbal communicative behaviours, and in developing, maintaining, and understanding, relationships. They must also have, or have had, difficulties in two of the four repetitive and unusual sensory–motor behaviours: Stereotyped or repetitive motor movements; insistence on sameness, inflexible adherence to routines, or ritualised patterns of verbal and non-verbal behaviour; highly restricted, fixated interests that are abnormal in intensity or focus; hyperreactivity or hypo-reactivity to sensory input, or unusual interests in sensory aspects of the environment (Lord, *et al.*, 2018). It is consequently easy to understand why students with ASD have EHCPs, as the diagnostic criteria mean they have complex mental health needs. The criteria also help us to understand why such students are considered to be on a spectrum.

Anxiety

It has been established that ASD is commonly accompanied by mental health conditions (Adams & Young, 2020), including but not limited to anxiety, depression, eating disorders and post- traumatic stress disorder (PTSD) (National Health Service, 2020). In turn, they have detrimental outcomes on quality of life, including educational outcomes, behavioural challenges, family life, employment, and independence (Adams & Young, 2020). Den

Houtinga *et al.* (2022) suggest that school performance is the domain most impacted by anxiety, therefore intervention could have significant value to the students, for their general standard of life, and their learning. With this in mind, it is unsurprising that finding effective treatments for these mental health conditions has been identified as a priority for research (Vasa, *et al.*, 2018), and the condition this paper focuses on is anxiety, due to its prevalence and significance for educational outcomes. Adams and Young (2020) suggest that the prevalence of anxiety in young people diagnosed with ASD is around 40% compared with 6.5% of neurotypical children and adolescents, while in adults with ASD it is 27% compared with 12.9%. This high prevalence of anxiety in those diagnosed with ASD shows a need to help with anxiety management, in ways that are healthy and accessible.

Anxiety is an emotional state, which is negative in nature and characterized by worry and nervousness, as well as arousing the body (Lavalley, *et al.*, 2012; Pijpers, *et al.*, 2005; Weinberg & Gould, 2011). Anxiety is defined as ‘facing uncertain, existential threats’ (Lazarus 2000, cited in Cox, 2012, p,155; Pijpers, Oudejans, & Bakker, 2005). Within the sports and outdoor education literature, anxiety is broken down into ‘trait’ and ‘state’, because we need to consider anxiety sometimes as a personality component, hence stable, and sometimes as a mood state, hence changing (Weinberg & Gould, 2011). While trait anxiety is a stable personality component, it also refers to an individual’s differences in anxiety proneness. People with different levels of trait anxiety differ in their perception of stressful situations and therefore respond to situations with elevated intensity of their state anxiety. Trait anxiety can also refer to an individual’s differences in the regularity and intensity that anxiety states have manifested in the past, increasing the chances that state anxiety will be experienced in the future (Spielberger, 1983). For students with ASD, where trait anxiety already runs high compared to neurotypical students, it is important to understand how trait and state anxiety are linked, and how the baseline of trait affects anxiety around social interaction due to socio-communication impairments, lack of specific social skills, and diminished social motivation (Spain, *et al.*, 2018), and understand that with young people who have ASD there are links between emotional regulation, anxiety levels, and social interaction issues (Conner, *et al.*, 2020).

The term *Anxiety*, as well as referring to either a trait or a state, can also take a broad range of forms, all of which can affect people with ASD. These forms have been broken down into five areas: generalised anxiety disorder (GAD), obsessive compulsive disorder (OCD), panic

disorder (PD), post-traumatic stress disorder (PTSD), and social phobias (SP) or social anxiety disorder (SAD) (Department of Health & Human Services, 2014). Kent and Simonoff (2017) look at the prevalence of individual anxiety disorders in people with ASD. While the figures varied due to the different questionnaires used, they found that the reported prevalence of common anxiety disorders was: Generalised anxiety disorder (GAD) (6%-32%), obsessive compulsive disorder (OCD) (5%-37%), Specific phobias (31%-67%) (these would come under GAD and panic disorder according to the Department of Health and Human Services, but they separate them due to the pervasiveness and wide scope of GAD), and social anxiety (4%-29%).

Implications for customising research

A meta-analysis of ASD anxiety research conducted by Lau *et al.* (2020) finds that separation anxiety and panic disorders were reported less frequently than other symptoms of anxiety. This could be informative, or it could be because questionnaires used in some of the research had not been developed specifically for people with ASD, and therefore tended not to discriminate between characteristics of ASD and symptoms of anxiety. The two can indeed be difficult to unpick (Rodgers, *et al.*, 2016). People with ASD can have multiple forms of anxiety (Lau, *et al.*, 2020) all of which can have debilitating effects. These forms can be exacerbated by the characteristics of ASD e.g., social anxiety disorder may be very prominent in responses to a questionnaire, implying that alleviating it should be a priority, when actually it is largely due to ASD's social communication characteristics (Spain, *et al.*, 2018). This needs to be considered when analysing data linked to ASD participants, which is why in the current project a questionnaire specifically designed for ASD participants was used.

Therefore, we have seen that a growing number of young people are being diagnosed with special educational needs, including ASD, and the complexity associated with obtaining a diagnosis of ASD, along with the prevalence of secondary mental health issues, means that those with ASD will most likely have an EHCP in place. Around 40% of young people diagnosed with ASD suffer from anxiety, which impacts much of their lives including school performance, therefore, helping students to find ways to manage their anxiety in ways that are healthy and accessible should be a priority, and when research is carried out, the questionnaires need to be appropriate. One of the ways to manage anxiety is to spend time in nature. There are multiple theories and frameworks linking nature with mental health and they will be considered next.

Theories Concerning Nature and Mental Health

Various theories link nature to positive effects on people's mental health, wellbeing, and stress levels, and therefore were used to underpin the project. These include Wilson's biophilia hypothesis (Gullone, 2000; Kellert & Wilson, 1993), attention restoration theory (ART) (Kaplan, 1995) and stress reduction theory (SRT) (Ulrich, 1981). These will be explained and used together to discuss the state of research into the impact of time and activity in nature for young people with ASD. The first to be discussed is Aked *et al.*'s (2008) Five Ways to Wellbeing, as this helped structure the project and was the overarching practical framework that the other theories underpin.

Practical framework: The Five Ways to Wellbeing

Aked *et al.* (2008) lay out five 'ways' (actions) that we can build into our everyday lives to increase wellbeing: **connecting, being active, taking notice, learning and giving**. They have been designed to be easy to add into daily life, but integrating the framework may be more difficult for people with special educational needs and ASD, due to underlying anxiety. We now discuss each in turn, both in terms of value and potential relevant challenges.

To connect can be a challenge, as those with ASD find reading social cues difficult (Lord, *et al.*, 2018). A national survey of mental illness in Britain found that the biggest difference between this group and those without mental illness was social participation (Aked, *et al.*, 2008). Hickey, Crabtree, and Stott (2018) found that a longing for connection was one of the biggest overarching themes, with most participants considering themselves isolated and lonely. This is a defining feature while they were growing up, but adults in employment also found the social elements stressful, showing how this can be a lifelong issue. However, the feelings of being isolated were not always negative. This gave them time to pursue hobbies and interests uninterrupted, to focus on mastery and achievement, often offering a place of safety from the social world. Forest School offer opportunities to focus on mastery, connecting with nature and people in ways that may be less stressful than other social situations, allowing the participants to become comfortable in the environment and nature, in advance of becoming comfortable with each other.

To be active is important for young people with ASD, as they have been found to have a more sedentary life than their neurotypical counterparts, leading to them tending to be overweight or

obese (Demirci & Phytanza, 2021). Their social, cognitive, behavioural, and physical development negatively affect their levels of physical activity (Bandini, *et al.*, 2013). Physical exercise in general and walking in particular can have a positive effect on mental health (Sport England, 2020), as shown by meta-analysis of walking groups (Hanson & Jones, 2015), but the location also has an impact: A meta-analysis by Thompson Coon *et al.* (2011) found greater self-reported mental wellbeing benefits to being active outdoors compared to the same activity indoors. They acknowledge that there was a lack of methodological quality across the research material they looked at, and that the majority only compared one outdoor to one indoor session. More recently, another meta-analysis found that outdoor nature-based activity intervention improved mental wellbeing, with the best results coming from studies of interventions that lasted between twenty and ninety minutes, over eight to twelve weeks (Coventry, *et al.*, 2021). Another meta-analysis found that there was a statistically significant decrease in anxiety following physical activity in a natural environment compared with an urban environment (Wicks, *et al.*, 2022). These studies emphasise the enhanced value of exercise in nature.

Taking notice covers many different areas. O'Brien (2018) suggests that it can be developed by taking part in mindfulness activities that focus on taking notice of our surroundings, such as the sound and views of a forest or water. The planned activities of the programme offered opportunities for this to happen naturally. Taking notice in the context of social cues and feeling can be challenging for young people with ASD. But mindfulness activities in nature have been shown to help young people with ASD with both interpersonal and intrapersonal skills (Barakat, Bakr, & El-Sayad, 2019; Cottrell & Cottrell, 2020). Barakat, *et al.* (2019) suggest animal, sensory, and horticultural therapies. Cottrell & Cottrell (2020) concentrate on different outdoor activities as a means of developing these same skills. Both these sets of researchers suggest that the empirical evidence is not yet fully available, yet this can be questioned due to the range and depth of studies linked to Stress Reduction and Attention Restoration Theory, which are investigated below.

Keeping learning new things can be a challenge for people who have ASD. Chapman and Evans (2020) highlight how students with ASD can have to deal with intrusive thoughts and feelings, which lead them to avoid new situations to make these thoughts and feelings less likely. Prioritising familiarity and safety is understandable, but this prevents them from accessing activities that might add value and meaning to their lives. Overcoming these obstacles takes time, but can be done through supporting young people through gentle

transitions, communicating new ideas clearly, creating new routines, and using individual pre-existing interests (Webster, *et al.*, 2022). New experience can then become part of a familiar routine, providing the safety needed, not only to participate but also thrive. O'Brien (2018) links the learning of new skill with being *active* in the form of woodland management, which also links with *taking notice*. Hayes (2023) reports that students developed high levels of self-esteem through learning new skills, and talked about how they would use them in different contexts, showing a growth mindset and increased self-confidence. Learning a new skill can become perceived as an attractive opportunity, rather than an obstacle.

The impact of outdoor learning on self-esteem and self-confidence is widely discussed in outdoor pedagogy literature, notably Dabaja (2022) who looked at the impact of Forest School on young peoples' self-confidence over the last 20 years and found that the literature suggests that participating in Forest School leads to increased levels of self-image. While Prince's (2021) review of the wider field of outdoor education suggests that self-confidence is one of the key lasting impacts when taking part in outdoor activities, Priest (2023) suggests that one of the ways self-image is developed is through the perception of risk, and learning to manage feelings of fear and self-doubt through coaching, practice and guided reflection. These findings not only support the impact that outdoor learning has on the affective domain, in particular the concept of self (Williams & Wainwright, 2016), but also the key principles of both outdoor education and Forest School: challenge by choice and principle 4, of forest school, taking *supported risks*.

To give can cover a broad range of ways, according to Aked *et al.* (2008). Volunteering was built into this research, with a local charity that protects and maintains the environment the students used. A recent study described how young people and young adults dealing with depression and anxiety found volunteering, alongside other treatment, a good way to help them deal with their affective disorders (Ballard, *et al.*, 2022) and participants perceived positive effects on their mood and wellbeing, such as reducing social anxiety. During interviews the participants described how volunteering was a positive distraction, while others stated that it helped with social anxiety, since while volunteering they could not avoid communicating with people. However, that study was not conducted with ASD participants, and the social aspect of volunteering could also be a source of increased anxiety for people with ASD, so volunteering has to be carefully managed, as evidenced from the parent feedback in Anderson, *et al.*'s (2021) study, which noted how volunteering triggered increased anxiety and reluctance to participate.

Underpinning theories: Biophilia, ART and SRT

The Five Ways to Wellbeing, as well as this study, are underpinned by theories on why and how time in nature has an impact on mental health, in particular Biophilia, ART and SRT.

Wilson's biophilia hypothesis states that humans have an innate need to connect with nature, which developed over the thousands of years humans spent as hunter gatherers (Kellert & Wilson, 1993). Ulrich (1983, cited in Gullone, 2000, p. 294) suggests that nature reserves have been supported due to the belief that exposure to nature helps with psychological and physiological wellbeing, including reduction of stress and adds weight to the innate need to connect with nature, as seen in the parks movement, started in the 1830s to improve public health in overcrowded, industrial cities (Jordan, 1994). In 1929, the national parks committee terms of reference link closely with biophilia, emphasising "*preservation of the natural characteristics including flora and fauna, and... the improvement of recreational facilities for the people*" (Mair & Delafons, 2001). Wilson (1984) suggests that the nomadic, hunter gatherer lifestyle left an indelible imprint on us of the types of landscapes we needed for survival and that we now find so pleasing, including grasslands, lakes and woodlands, which are included in our local and national parks. White, *et al.* (2021) suggest that people seek out these types of landscapes for their calming effects and as a way of managing multiple psychological issues such as stress, depression and anxiety. This helps to explain why time in nature can be helpful for reducing anxiety, which is key to this study.

Attention Restoration Theory (ART) works on the premise that directed attention, the ability to focus on cognitively demanding tasks, which is critical to high-level cognitive functions and behavioural regulation, fatigues with use but can be restored through exposure to nature (Kaplan, 1995). Young people with SENDs, can have difficulty in regulating emotion, as well as trouble concentrating, which links to and exacerbates difficulties regulating behaviour. Kaplan (1995) suggests that nature can provide fascination, allowing the brain to utilise *involuntary* attention, which allows voluntary (directed) attention to rest and reset, due to the combination of four factors:

First, there needs to be a sense of *being away* from mental activities that require directed attention. Kaplan (1995) acknowledges that the seaside and mountains may be out of reach, and states that accessible natural environments such as parks and nature reserves are an

important resource for resting directed attention. Second, the area must stimulate *fascination* or interest. Kaplan (1995) suggests the natural world has many “soft” fascinations such as clouds, which allow the brain time to reset. Third, it must have *extent* – rich, coherent enough and of sufficient scope to engage the mind, though the area does not need to be vast. A path disappearing round a bend can have rich scope. Extent can also be on a conceptual level, such as when an area includes a historical artifact that allows for a connection to times past (Kaplan, 1995). Lastly, it needs to have the *capability or compatibility* to fit what you are trying to do. Humans use the natural environment in many ways, for gardening, bird watching, and campcraft (Kaplan, 1995). Humans have used the natural environment for these activities for thousands of years, making this environment highly compatible with our needs.

Attention restoration theory has critics. Neilson *et al.* (2012) suggest that sustained attention to response task (SART) is difficult to measure, making it difficult to prove its restoration. Similarly, the meta-analysis by Ohly *et al.* (2016) suggests that there is ambiguity with the construct of direct attention due to there being no consistent form of measurement. This led to Stevenson and colleagues, breaking directed attention into specific domains and they found that time in nature helps with the restoration of areas of cognitive processing, specifically working memory, cognitive flexibility and to a lesser degree attentional control (Stevenson, *et al.*, 2018). Furthermore, a controlled study by McDonnell & Strayer (2024) used Electroencephalography (EEG), a neurophysiological method that records the electrical activity of the brain, and found that participants who walked in natural environments, compared to those who walked in urban environments, had enhanced executive control aspects of attention. They concluded that this restoration was above that found with exercise, which has also been shown to aid in cognitive restoration. These areas are of specific interest in terms of showing the continued validity and relevance of ART to this study, as they can all be impaired by SEN diagnoses including ASD. Both working memory and cognitive flexibility come under the domain of executive function which is achieved through executive control (Yan, *et al.*, 2021) and is a key cognitive struggle for those with ASD. Executive control and emotional regulation are also linked (Khosravi, *et al.*, 2020), further revealing the potential significance of restoration in a context of ASD.

The environmental value of ART was acknowledged by Egner, Sütterlin and Calogiuri (2020) who propose a new framework ‘conditioned restoration theory’, although Craig, Travis and Klein (2019) suggest that the characteristics lack operational definition and there is a lack of

evidence that soft fascination characteristics capture attention. Despite its critics, ART continues to show its relevance, through developments including looking at more precise elements of attention restoration, and its interactions with other theories: McDonnell & Strayer (2024) recognise that there may be crossover with other theories such as Ulrich's stress reduction theory, which will be discussed next.

Stress Reduction Theory (SRT), developed by Roger Ulrich (1981), suggests that viewing natural environments can reduce stress levels, manifesting as a reduction in physiological arousal, psychological stress, and negative affect, and enhanced positive affect (Marselle, 2019; Ulrich, 1981). Natural environments are characterised by views of moderate complexity and depth, have focal points, deflected vistas, surfaces conducive to movement, lack of threats, and water (Marselle, 2019). These characteristics bring together those described in Kaplan's Attention Restoration theory and the features that the location of the project can provide.

Stress is so closely related to anxiety, as a specific reaction to stress, that recent literature exploring the impact of outdoor learning and spending time in nature on anxiety and emotional regulation, can be seen to be relevant to assessing some of the key assumptions behind SRT. This research shows it is correlated with lower anxiety and increased emotional regulation (Godovich, *et al.*, 2020). Helbich *et al.* (2018) found a positive association with prescriptions for anxiety and mood disorders and areas of low greenspace and a strong negative effect with areas of large proportions of greenspace in the Netherlands and there have been similar findings in London (Taylor, *et al.*, 2015). More recent research found a negative association between antidepressant prescription rates and increased density of street trees or greenspace across European countries and suggested that woodlands have a positive impact on mental health (Saraev, *et al.*, 2021). However, it is worth noting that a meta analysis by White *et al.* (2021) found no relationship between greenspace exposure and prescription medication across 18 countries; they instead found that people on anxiety medication visited inland blue and green spaces with greater frequency, suggesting they sought out these areas as a form of self-medication. They also found a positive effect on feelings of wellbeing and anxiety when visiting green spaces, possibly validating their self-medication theory, but also in the process validating the overall relevance of SRT.

Less mainstream research also confirms the significance of SRT to non-western approaches to outdoor time and learning. Forest bathing/ *shinrin-yoku* is a difficult pathway to quantify due

to a lack of data, but has potential for further research (Saraev, *et al.*, 2021) as studies link components such as tasks and people as well as environment, to well-being and mental health (O'Brien, 2018). Yasuhiro, Richardson & Sheffield (2020) conducted a meta-analysis of forest bathing studies considering approaches including breathing, walking and yoga. While they acknowledge the need for more rigorous research in the area, they found that *shinrin-yoku* can have a positive effect on the reduction of mental health symptoms in the short term, especially anxiety. This connects directly to SRT as in a recent study forest bathing contributed to a decline in cortisol levels, known as the stress hormone (Clarke, *et al.*, 2021).

The search for evidence linked to these theories for participants with ASD

Li *et al.* (2019) found that children with ASD who spent time in nature were more relaxed. While the study recognised that nature could not prevent or calm tantrums or cure mood disorders, it did give the opportunity to reduce stress levels, which helps to reduce anxiety levels. Li and colleagues discuss the benefits of the outdoors through the lens of ART and SRT, suggesting the benefits to mental health and emotional regulation the outdoors can have for young people with ASD, and this is backed by a 2023 study (Li, *et al.*, 2019; McGowan & McGregor, 2023). Li *et al.* (2019) acknowledge how this demographic has major barriers when accessing green space. They suggest one way to remove the barriers, is to have specially designed areas, and Barakat, *et al.* (2019) detail how to design these areas for people with ASD, aligning with features set out by Kaplan and Ulrich, further showing their theories' value. A limitation of this study is that the data was collected not from the children, but from parents' perception of the benefits for their children.

O'Brien's (2018) study involved groups of young people whose ASD ranged from mild to severe. This was a structured intervention where the groups worked with a Forest School leader and took part in activities in social engagement, woodland craft engagement, and creative and sensory engagement including art and mindfulness. These engagements were based around the Five Ways to Wellbeing theory. While the study did not look at anxiety levels in isolation, it recognised the need to find ways to help reduce the anxiety levels of participants so that they could fully engage in the projects. The main way this was achieved was through multiple visits to the same space with the same people helping to create new habits to aid in the transition to a new environment and new concepts (Webster, *et al.*, 2022), thus building trust, developing relationships, and reducing anxiety levels.

Byström *et al.* (2019) conducted a longitudinal study on the impact of nature and animals on young people with ASD. These sessions gave the participants higher levels of vitality and mental energy, and enabled them to engage socially, reflect on conversations, and engage in imaginative play, with less anxiety than they would normally display. This led to the participants engaging in more affective-based communication, which is difficult for people with ASD (Byström, *et al.*, 2019). A combination of several theoretical predictions explains the breakthrough in terms of affective-based communication: this intervention shows that spending time in and with nature can encourage better mental and social engagement, linking to ART due to having more capacity to engage, and since social engagement can lead to high levels of anxiety, it shows how one can help the other via SRT and the connected reduction in stress levels. However, physical activity was mainly discussed through interaction with animals or people rather than being an integral and planned part of the experience. On the other hand, Carey *et al.* (2022) look at whether school-based exercise programmes help to reduce anxiety levels in children with ASD. They found that a 16-week school-based programme of activities in indoor and outdoor venues significantly reduced anxiety levels. It does not involve a connection to nature, but its findings are relevant, as physical activity is part of Forest School, and one of the five Ways to Wellbeing. Their study asked both parents and teachers to fill in the questionnaire about the young persons' anxiety levels and found there was a large disparity between their views of anxiety levels. It suggests that teachers report higher levels of anxiety than parents because young people experience greater levels of anxiety at school, and that the benefits of physical activity on anxiety only last for a few hours and therefore were more visible in the school setting.

In the current study, teachers instead of parents were used as part of the data collection, alongside the students, as it gives insight to a young person's level of anxiety during the school day. This time-limiting of the beneficial effect is interesting, as it suggests that the timing of interventions and self-regulation methods is important. Such knowledge would help a young person manage their anxiety when exams, interviews, or other events are coming up that may trigger spikes in anxiety levels. While both Byström *et al.* (2019) and Carey *et al.* (2022) have value they consider two different aspects, with Byström *et al.* (2019) concentrating on nature while Carey *et al.* (2022) concentrates on the physical aspects. This study has tried to combine both aspects to give a more holistic experience to the young people.

The Five Ways to Wellbeing, Biophilia, ART and SRT theories together had a direct impact on the nature and design of the current study. The Five Ways to Wellbeing impacted the structure and range of the activities the young people were exposed to during the intervention: unhurried time and teambuilding aimed at *connecting*; students were *active* when canoeing and orienteering; they had opportunities to *take notice* during art and chasing bugs in the long grass; they engaged in *new learning* with putting up tarpaulins and firelighting; and they were able to *give* through volunteering. Biophilia helped explain the choice of the forest for the setting, while ART directed me towards an unfamiliar location to ensure the students had the experience of *being away*, which was *compatible* with camp craft and SRT underpinned the hypothesis that the intervention would have an impact on the participants' anxiety and through that to their behaviour.

Forest School and Slow Adventure

The intervention was designed combining the nature-based education pedagogy of Forest School, with the non-algorithmic paradigm (Loynes, 2002) of slow adventure. Their features are explored in the introduction, and are developed and critiqued below, before discussing how they can together build a sense of place, which was one of the wider goals of the intervention.

The six guiding principles of Forest School were met by the current study, as the learners had a series of woodland sessions over a school term, and the activities aimed to foster independence and supported risks, such as in the canoe journey, facilitated by professionals and observed by a researcher with a Level 3 Forest School practitioner qualification, and student choice was embedded in the processes. This relates closely to aspects of the Five Ways to Wellbeing, although it is not explicitly referenced, as creating a community can be seen as *connecting*, qualified practitioners facilitate *new learning*, and a relationship with the natural world requires *taking notice* (Aked, *et al.*, 2008; Forest School Association, 2017; Friedman, *et al.*, 2024). Friedman *et al* (2024) found that Forest School gave opportunities for positive development in areas such as practical and motor skills, and a chance to connect to nature and develop social skills.

However, Forest School has been criticised. Firstly, Waite and Goodenough (2018) acknowledge that there is a misalignment between mainstream education and the Forest School principles, with Forest School being learner-led and skills-based while mainstream education,

based on the national curriculum, is largely, though not exclusively, teacher-led and knowledge-based (Leather, 2018). Secondly, Forest School philosophy has its roots in *Friluftsliv*, which is significantly different from more general outdoor education, being based in Danish culture. Leather (2018) argues that this essential cultural feature becomes lost when implemented in other countries. For example, the outdoors is not central to British cultural identity (Maynard & Waters, 2007). Historically, the British have seen the outdoors as a place to be conquered or romanticised (Bellino & Adams, 2017). While this British relationship with the outdoors may be changing, fragments of this cultural connection with the outdoors remains and shapes our conception of the outdoors differently to *Friluftsliv* (Leather, 2018). Leather (2018) continues, however, by suggesting Forest School be viewed through a social constructionism lens. Blackham, Cocks and Bunce (2021) conducted research through this lens, concluding that Forest School had three interconnected themes: Space, Sense of Community and Power-shared Pedagogy, and that these themes help to build micro communities.

The *slow movement* (Gelter, 2010), which includes slow food, slow travel, and slow learning, as well as slow adventure, has gained traction over the years (Varley, *et al.*, 2020) in response to the speeding-up of society (Varley & Semple, 2015). Osbaldiston (2013) suggests that the advancement of technology and modernisation, which has made our lives progressively faster, more hectic and complex, with a need for things to be achieved immediately, has led to an increase in health issues such as anxiety, depression, and stress (Priyaa, Garga & Tiggaa, 2020) all of which many of our participant students suffer from, and which may be exacerbated as they transition from adolescence to adulthood (Uljarević, *et al.*, 2020). If we are to combat both the cause and effects of this fast life we need to slow down, to understand what it is to really live, to undergo a cultural and mental change in the way we approach life (Osbaldiston, 2013). However, slow adventure is still active, so in the current study it is characterised by a canoe journey and orienteering, therefore also linking to the research discussed earlier on physical exercise in the outdoors and to the *active* strand of the Five Ways to Wellbeing (Aked, *et al.*, 2008). Slow adventure, characterised by valuing heritage, time, and tradition, borrows from *Friluftsliv*, and the current paper acknowledges the consequent cultural differences, but we can still use its concept in Britain to help develop a sense of place. There may also, drawing on the theory of biophilia, be aspects of our response to nature that are common to us all due to our ancient shared history (Kellert & Wilson, 1993). Forest School and slow adventure overlap and have shared roots in *Friluftsliv* as shown in the work of Leather (2018) and Gelter

(2010); we will refer primarily to ‘Forest School’ here, though the study drew on a combination of both elements.

Developing a sense of place is a pedagogical approach aiming for participants to develop and experience a sense of attachment to a location, and to consider what impact that location has on a person, as well as the effect people have had on it (Lloyd, *et al.*, 2018; Williams, 2018). Leopold (1966) called disconnect with the environment ‘landlessness’ (p. 19), which has come about in two different, but interconnected ways. Firstly, we have lost areas of land that were wild due to urban development and expansion. Secondly, we as a society have lost our collective awareness and admiration for the land (Baker, 2005). Place is considered through multiple paradigms, including ecological, ideological, and perceptual (Gruenewald, 2003), social-cultural, political, economic (Lloyd, *et al.*, 2018), and historical (Williams, 2018; Mannion & Lynch, 2016), so place is evocative of both the imaginative and the physical realities of a location and its people, and how they interact and change each other (Wattchow & Brown, 2011). Cudworth and Lumber (2021) discuss how Forest School can help develop a sense of place. Participants can interact in a natural environment with peers and adults, as well as with creatures and the outdoors itself; this freedom to explore and play safely in the natural world is one of the key factors in developing a sense of place (Cudworth & Lumber, 2021). Free play can help to develop a sense of belonging to a place, as the environment becomes a place of beauty (Davenport & Anderson, 2005), while meaningful bonds are developed through the social ties and activities of the participants in the environment (Scannell & Gifford, 2010). The types of play can also link to the different paradigms that place can be considered with. For example, recapitulative play ‘allows the child to explore ancestry, history, rituals, stories, rhymes, fire and darkness. It enables children to access play of earlier human evolutionary stages’ (Hughes, 2002). Engaging in socio-dramatic play, enacting real life through play, like using two sticks or two rocks to create fire can help participants to explore ancestry and history, re-enacting ancient tradition or ancient stories of nature to understand this tradition’s social-cultural and historical relevance; pretending to be an animal and creating its home or catching its food can help people to understand the ecology system and their place in it.

Many of the key elements of slow adventure (journeys, wildlife tracking etc; see Introduction) link with the different paradigms that place can be viewed through. Wildlife tracking or watching could help us culturally and environmentally interpret the relationship our ancestors had with wildlife and with the wider eco-system. Varley, *et al.*, (2020) identified three themes

that people wanted when taking part in slow adventure activities: Nostalgia and tradition, doing and sharing, and escape and disconnection from their routine lives. Again these can help with the development of a sense of place and can cross over both with Forest School and the theories discussed, such as the requirement of *being away* in ART (Kaplan, 1995). Nostalgia and tradition can be interpreted in different ways, either with tradition and a back-to-basics philosophy at its heart, or as an escape from modern-day high-speed living. Either way it can give the participants the opportunity to take in their surroundings and slow down, which fits with Kaplan's attention restoration theory (Kaplan, 1995). This can be combined with doing and sharing, spending time with peers – also sharing experiences, chores, and knowledge; these embed a sense of place (Cudworth & Lumber, 2021; Scannell & Gifford, 2010) and bring together several parts of the Five Ways to Wellbeing framework (Aked, *et al.*, 2008). An example of this might be mealtimes, sharing and practising skills of fire lighting, and preparing and cooking food on open fires. Fire making is one of the most nostalgic and traditional skills we humans have, as fire is an exclusively human activity, with evidence of its use going back 1.5 million years (Sorensen, 2020).

This chapter has sought to consider the literature relevant to this study, in the fields of SEN, ASD and anxiety, as well as the theories linking time in nature to improved mental health outcomes and the pedagogical approach of Forest School and the societal appeal of slow adventure. In so doing it has made connections between these fields, identified limits on what we currently know and highlighted areas that this study builds on. The next chapter details the methodology of the study in detail, both in terms of the design of the study, such as the use of quantitative and qualitative methods, and the intellectual approach used.

Chapter 3: Methodology and research design

This chapter discusses the methodology and research design, beginning with a framing of the constructivist paradigm and its position in the research. Next it lays out the research setting and participants, the structure of the intervention and how the use of well-trained instructors along with support staff helped manage anxiety and behaviour to allow the participants to get the most out of the sessions. This is followed by a justification for the qualitative and quantitative methods used to collect the data, and the ethical consideration of the intervention.

Logic of Inquiry (Qualitative or Quantitative)

The philosophical paradigm used was constructivism. This paradigm is a good ontological fit, as constructivism recognises that people experience reality on an individual basis with multiple realities within a group, and rejecting the possibility of a correct reality (Dieronitou, 2014) or universal truth. Constructivism enabled a mixed-method approach, with triangulation of quantitative and qualitative methods, that explores the diversity of the data gathered, while valuing it all, in a quest to develop knowledge (Shan, 2022). The constructivist paradigm allows for the systematic exploration of both objective and subjective phenomena, in the epistemological view that knowledge is personal, subjective and unique (Cohen, *et al.*, 2018).

Cohen, Manion and Morrison (2018) ask, from an ontological view, whether social reality is external to an individual or the product of an individual's consciousness. Cognitive behavioural therapy is based on the assumption that anxiety is a personal experience, which is based on our thoughts, not external events (Perrotta, 2019; Weinberg & Gould, 2011). From a relativist ontological perspective the social world and physical world are different. This fits well with Guba's position that there are multiple interpretations of reality (Dieronitou, 2014; Guba, 1990) and therefore multiple realities (Malkani, 2019). These interpretations can be affected by a person's state of being at a particular time or by past experiences.

Anxiety and constructivism are a good fit with the no-universal-truth theory. While quantitative data enabled the analysis of measurable levels of anxiety (Soh, *et al.*, 2021), as well as the behaviour of the students before and during the intervention, the intent of the qualitative aspect of the study was to understand how the students found the experience, whether they found it

helpful in managing their anxiety and if they would actively continue with these kinds of activities of their own accord.

Research Setting and Participants

The main activities of the intervention were run at an outdoor centre based in northwest London, lasting for 90 minutes each week except for the Week 11 expedition which lasted all day. The centre is at a local reservoir surrounded by park and woodland, which allowed for outdoor activities, including canoeing, shelter building, campfires and cooking, map reading/orienteering, and team building. Other activities that the group participated in were run by a local conservation group, a charity dedicated to protecting and enhancing the reservoir and its surrounding area as a haven for wildlife. These activities included the removal of some invasive species and the creation of a large bug hotel (Week 5). Due to scheduling challenges, two sessions (Weeks 1 and 9) were run in-house, including an introduction to fire-lighting and an art and whittling session (see figure 1). The range of activities gave a good crossover between Forest School and slow adventure, with the final expedition day (Week 11) combining all the skills learnt over the course of the term: a canoe journey where the students stopped to set up camp and make lunch.

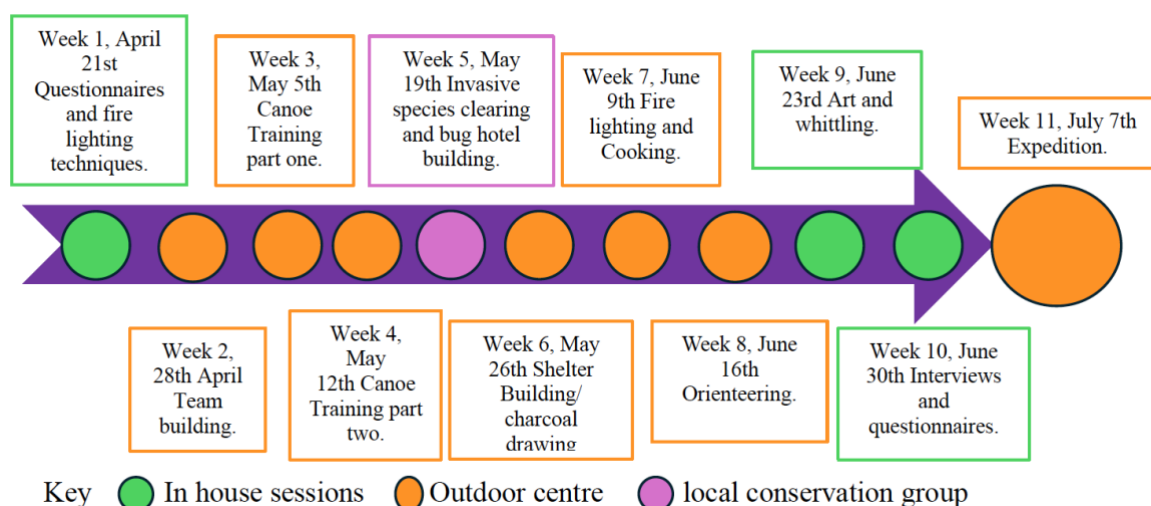


Figure 1, Timeline of intervention, providers and data collection.

Having the majority of the activities run by the outdoor centre and the conservation group allowed me and the rest of the support team to focus on helping the students manage their feelings during the activities and get the most from them in a safe environment. New environments and meeting new people can increase anxiety levels for young people with ASD (Li, *et al.*, 2019; McGowan & McGregor, 2023). The reservoir and woodland were new to some

of the participants, and anxiety levels can be further exacerbated by frustration when trying to learn a new skill. For many of our young people, social anxiety can mean issues with regulating their emotions (Conner, *et al.*, 2020; Spain, *et al.*, 2018) so we arranged to have the same instructor at the outdoor centre for the entirety of the programme. An OFSTED report by Clay (1999) indicated the importance of having outdoor professionals running sessions, while another study similarly emphasised knowledge but also consistency (Armour & Sandford, 2013). These arrangements allowed the young people to manage aspects of their social anxiety.

The intervention was timetabled as it was a way of including outdoor and adventurous activities in the curriculum, but it was optional and students were able to opt out of the data-gathering at any time, in line with section 31 of the ethical guidelines for educational research (British Educational Research Association (BERA), 2018). There were times when the students could not attend due to mental health issues, over-stimulation, or public exams. Therefore, students needed to attend a minimum of 60% of the sessions for their data to be included. Attendance meant coming to the activities and spending time in nature, rather than necessarily fully participating, because one of the core philosophies of Forest School is that it is a learner-centred process (Forest School Association, 2017; Waite & Goodenough, 2018). This philosophy also fits with challenge by choice, a cornerstone of outdoor education and key to building self-confidence (O'Carroll & Scanlon, 2023; Williams & Wainwright, 2016; Williams & Wainwright, 2016). In all 13 students took part in the intervention, of which nine met the threshold of 60%, and of these nine participants, one joined late meaning that the teachers only filled out questionnaires for eight of the participants who had joined at the beginning. The late joiner did complete a student ASC-ASD questionnaire pre and post. The intervention was 90 minutes in nature per week, as this was the maximum possible within the constraints of the school timetable. Dose recommendations vary significantly in the literature from 30 minutes (Shanahan, *et al.*, 2016) to 120 minutes (White, *et al.*, 2019) per week, but it is indicated that even a small amount of time is beneficial to mental health.

Methods: Instruments, Procedure of Data Collection and Processing

The constructivist approach allows for multiple methods of data collection, both the quantitative and qualitative (Shan, 2022). Quantitative methods were through use of questionnaires, which have already been validated, the Anxiety Scale for Children with Autism Spectrum Disorder (ASC-ASD) (Appendix 1) and Anxiety Scale for Children with Autism

Spectrum Disorder parent version (ASC-ASD-P) (Appendix 2) questionnaire developed by Rodgers *et al.* (2016). The questionnaire gives a total score which is a sum of all the questions as well as the individual sub-scales, with each question rated on a 4-point Likert scale (Rodgers, *et al.*, 2016). The school's behaviour reporting system, antecedent-behaviour-consequence (ABC) model (McMahon, *et al.*, 2019), was used to see if there had been any change in overall behaviour during the intervention term compared with the previous term.

Den Houting, *et al.* (2019) compared the ASC-ASD questionnaire with the Spence Children's Anxiety Scale (SCAS), which has been used in multiple studies with both neurotypical and neurodiverse young people. Grondhuis and Amam (2012) and Wigham and McConachie (2014) compared multiple self-reporting questionnaires that were designed for neurotypical children/ young people, but had been used to measure anxiety levels in young people with ASD, and found the SCAS to be a good crossover questionnaire at the time. However, as knowledge of the nuances of ASD developed, it was recognised that ASD specific questions were needed (Glod, *et al.*, 2017; Magiati, *et al.*, 2017). While this is a relatively new anxiety questionnaire, it has been developed especially for young people with ASD; it is often difficult to differentiate between anxiety symptoms and characteristics of autism, and the ASC-ASD scale does not measure autistic characteristics. Students and teachers completed the questionnaires; the students completed the ASC-ASD and the teachers completed the ASC-ASD-P. Carey, *et al.* (2022) followed this procedure to reflect the students' anxiety levels presented at school. Most studies concentrate on data collected from parents, and although this has value, teachers work closely with their students and can offer a different perspective. The data from the questionnaire was processed through SPSS, as the answers to all the questions are given a numerical value. Data gathered from the teachers, pre- and post-intervention, were analysed with a paired sampled T-test. Data gathered from the students were analysed with a Wilcoxon non-parametric test as they did not meet all the assumptions of the paired sampled T-test due to outliers in the data (Laerd Statistics, 2013). While these data points were considered outliers, it was due to high levels of reported anxiety and therefore reflected the students' anxiety levels, so it was included in the data.

Other data collected in the term before and after the intervention was the number of times the students had an ABC written about them. This is a functional behaviour analysis tool that uses the antecedent-behaviour-consequence (ABC) model (McMahon, *et al.*, 2019). This data was used to see if the student's behaviour had improved over the course of the intervention by

comparing the number of ABC's written in the term before, compared to the term of the intervention. McMahon, *et al.* (2019) used the data from ABC forms to help understand aggressive behaviour towards teaching staff. My institution uses it to monitor multiple behaviour such as school bolts, aggressive behaviour towards staff and other students, property destruction, and smoking. Data gathered, pre- and post-intervention, were analysed with a paired sampled T-test.

The qualitative method used was interviews with the students and staff. Interviews with each student participant took place in Week 10 of the intervention, so in the same week as the students did the post-intervention questionnaires. I did 1:1 interviews using the list of questions in Appendix 3, as well as follow up questions to help generate fuller answers where needed. The student interviews' aims were to understand how they felt about the project, and what they learned from it - interviews are considered a fitting method for these subjective questions (Roberts, 2020). Students were asked how spending time outdoor in nature made them feel, so that there was room to consider their levels of perceived anxiety, but without triggering or leading them in this direction, and they were asked whether they planned to continue to spend time in this way. Cairns-lee, *et al.* (2022) indicate that the wording of interview questions can potentially lead, and unduly bias, the interviewee's responses. This is also true of follow-up questions. Although these can be used to probe for more information (Cohen, Manion and Morrison, 2018), the overall goal of this method was to understand the experiences of the participants in their own words (Roberts, 2020). Due to the nature of the participants, the questions needed to be carefully considered, clear and easily understood (Kelly, 2007), including some different types such as unfinished statements (Healy, Msetfi & Gallagher, 2013), but because of the danger of bias and the potential for triggering anxiety, these were discussed with both my dissertation supervisors and the school headteacher. This was not merely to make sure they were appropriate, but particularly to help maintain an open stance, remaining aware of my own biases, so that each interview was approached with a genuine attitude of discovery (Roberts, 2020). To this end, when students took a question literally, I was mindful that this could be due to an inflexibility of switching interpretations (Vicente & Falkum, 2023), or insufficient vocabulary. Students were given multiple examples of vocabulary at both ends of the spectrum, e.g. relaxed or anxious. Staff interviews took place shortly after the Week 11 final expedition, within four days. All staff were asked the same questions (Appendix 4). These interviews were aimed at ascertaining their thoughts on how the project went, and whether they observed any changes in the school population, regarding the

students' anxiety levels, behaviour and general school atmosphere, so staff interviewed included some who had attended the intervention sessions and others who had not, but were well placed to comment for example on student behaviour.

In total 14 people were interviewed, nine participants and five faculty members. The interview data was processed thematically through NVivo, labelling the interview text with the Five Ways to Wellbeing eg. if an interviewee mentioned working in a team that was labelled *connecting*. This was broken down to see what the student was *connecting* to, eg. to a person or to nature. Some students found the process of answering the questionnaires quite triggering or refused to discuss their anxiety, so I made the decision to focus the interviews on enjoyment and drawing out what aspects of the sessions they felt had been helpful, as this generated responses I could then code and link to the Five Ways to Wellbeing. This helped establish if there was an alignment between the data collected from the ASC-ASD questionnaires and the ABC reports. All analysis took place after all the data was generated to avoid any subconscious influence on the outcomes.

Ethical Considerations

By not leading the majority of the sessions I hoped to neutralise the effect of the position of power that I have (Manion, *et al.*, 2018), also the instructors would have all the relevant licences and insurance (The Outdoor Education Advisers' Panel (OEAP), 2024), as well as risk assessments for the activities (Appendix 5-7). The sessions that had to be facilitated in-house, were run by school staff e.g. the art-based activities by an art teacher. Informed consent when working in a school for special educational needs students can involve additional ethical considerations (Cohen, *et al.*, 2018). Fortunately, many of the students are capable of understanding, and so they were fully informed and then given the choice on whether to take part and told that they could withdraw at any time, in line with section 31 of the ethical guidelines for educational research (British Educational Research Association (BERA), 2018). This was done at several stages, first during the main presentation before the project started, which explained what the project was about, and what they would be doing if they decided to take part. A statement was also placed at the beginning on both the pre-(Appendix 8), and post-questionnaires, which had a tick box confirming their understanding before being allowed to continue. Overall consent came from the Headteacher, who is *in loco parentis* (Cohen, *et al.*, 2018). The school office informed parents via letters by both email and post. The Headteacher

also talked to the parents on a weekly basis, using this opportunity to remind parents about the project, and, for example, if a change of clothes would be needed due to the activity or the weather. Data collected was stored and used in line with General Data Protection Regulation (GDPR) (British Educational Research Association (BERA), 2018).

Therefore, the methods used to generate and process the data were in line with a constructivist paradigm, while the planning of the intervention and data collection minimised aspects which could trigger additional anxiety in the participants, and took ethical considerations into account. The next chapter presents the results and findings from that data.

Chapter 4: Results and Findings

This chapter notes the characteristics of the study participants, and presents the results and findings, consisting of the quantitative results found from the ASC-ASD questionnaires collected from teachers and students as well as the data gathered from the ABC reports on behaviour. Result 1, teachers' questionnaires, showed a statistically significant reduction in performance anxiety and anxious arousal. Result 2, students' questionnaires, showed a statistically significant reduction in separation anxiety. Result 3, ABC data, showed a statistically significant reduction in the amount of negative behaviour reported during the term of the intervention. The chapter then looks at qualitative data from the interviews with the students and teachers. Finding 1, showed that students valued **connecting** with people and **learning** new skills. while in Finding 2, teachers noticed the positive effect on school atmosphere and school behaviour.

Nine young people between the age of 16 and 19 years ($M=16.67$, $SD= 1.22$) were included in the analysis, all of whom had an autism and anxiety diagnoses. Participants' characteristics are presented in Table 1.

Table 1. Characteristics of Student Participants

Variables	Sample (n=9)	
	M	SD
Age (years)	16.67	1.22
Autism Diagnosis (no, %)	9(100%)	
Anxiety Diagnosis (no, %)	9 (100%)	

Quantitative Data

Result 1, teacher ASC-ASD questionnaires

Nine teachers completed a multiple ASC-ASD questionnaire about the student they knew best, the scores were used to give a mean for each student. The questionnaires were completed pre- and post-intervention and were included in the analysis. Pre-intervention descriptive data can be viewed in Table 2 and post-intervention descriptive data can be viewed in Table 3.

Table 2. Descriptive Statistics, Teacher Pre-intervention

Descriptive Statistics Teacher pre- intervention									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis		
Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Score Av	8	11	43	24.5	11.892	0.921	0.752	-0.577	1.481
Performance Anxiety Av	8	4	13	8.13	3.182	0.381	0.752	-0.9	1.481
Anxious Arousal Av	8	1	9	3.5	2.563	1.628	0.752	2.837	1.481
Separation Anxiety Av	8	1	8	3.63	2.615	0.866	0.752	-0.514	1.481
Uncertainty Av	8	3	17	9.38	4.689	0.239	0.752	-0.814	1.481
Valid N (listwise)	8								

Table 3. Descriptive Statistics, Teacher Post-intervention

Descriptive Statistics Teacher post-intervention									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis		
Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Score Av	8	5	49	22.13	14.999	1.104	0.752	0.16	1.481
Performance Anxiety Av	8	3	12	6	3.586	1.066	0.752	-0.408	1.481
Anxious Arousal Av	8	0	7	2.5	2.39	0.878	0.752	0.387	1.481
Separation Anxiety Av	8	0	11	4.63	3.852	0.961	0.752	-0.22	1.481
Uncertainty Av	8	2	23	9.75	6.563	1.142	0.752	1.762	1.481
Valid N (listwise)	8								

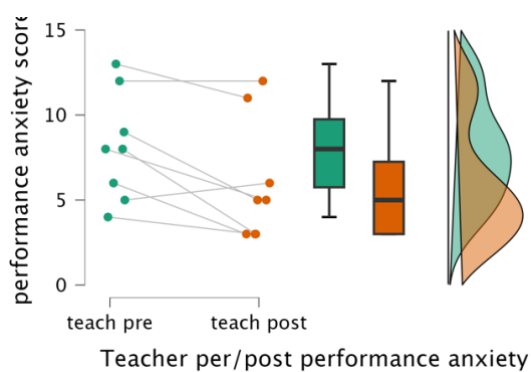


Figure 2: Teachers scores, performance anxiety pre and post

A summary of the results for the teacher-reported ASC-ASD can be seen in Table 4. A paired-samples T-Test was conducted to evaluate the impact the Forest School programme had on the anxiety levels of the participants. There was no statistically significant difference observed between the overall scores, pre-intervention ($M=24.5$, $SD=11.89$) and post-intervention [$M=22.13$, $SD=14.99$, $t(7)=1.148$, $P>0.05$].

However, when considering the sub scales, we can see that there was a statistically significant difference in performance anxiety, with Pre-intervention scores ($M=8.13$, $SD= 3.18$) and the post-intervention [$M=6$, $SD=3.59$, $t(7)=2.959$, $p=0.021$](two-tailed), with a medium Cohen effect size of $d=0.55$ (Lakens, 2013)(Table 4 and Figure 2).

There was also a significant difference in the anxious arousal subscale Pre-intervention ($M=3.5$, $SD=2.56$) and the post-intervention [$M=2.5$, $SD=2.39$, $t(7)=2.366$, $P>0.05$], with a significance value of $p=0.05$, with a medium Cohen effect size of $d=0.44$ (Lakens, 2013)(Table 4).

Table 4. Results for the paired sample T-test for teachers reported ASC-ASD

Variables	Pre-intervention		Post- intervention		Two-sided p
	M	SD	M	SD	
Total ASC-ASD	24.5	11.89	22.13	14.99	0.289
Performance					
Anxiety	8.13	3.18	6	3.59	0.021
Anxious Arousal	3.5	2.56	2.5	2.39	0.05
Separation Anxiety	3.63	2.615	4.63	3.85	0.121
Uncertainty	9.38	4.69	9.75	6.56	0.741

Result 2, student ASC-ASD questionnaires

Nine students completed the ASC-ASD questionnaire both pre- and post-intervention and were included in the analysis. Pre-intervention descriptive data can be viewed in Table 5 and post-intervention descriptive data can be viewed in Table 6.

Table 5. Descriptive Statistics, Student Pre-intervention

Descriptive Statistics Student pre-intervention									
Statistic	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
Student Score	9	3	55	19.44	16.771	1.242	0.717	1.603	1.4
Performance									
Anxiety	9	0	15	5.44	4.391	1.325	0.717	2.317	1.4
Anxious Arousal	9	0	13	3.44	3.877	2.232	0.717	5.554	1.4
Separation Anxiety	9	0	11	3.11	3.333	1.828	0.717	4.288	1.4
Uncertainty	9	0	20	7.33	7.036	0.754	0.717	-0.327	1.4
Valid N (listwise)	9								

Table 6. Descriptive Statistics, Student Post-intervention

Descriptive Statistics Student post-intervention									
Statistic	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
Student Score	9	0	32	14.22	11.702	0.439	0.717	-1.404	1.4
Performance									
Anxiety	9	0	6	2.56	2.242	0.291	0.717	-1.58	1.4
Anxious Arousal	9	0	10	3.44	3.678	0.785	0.717	-0.559	1.4
Separation Anxiety	9	0	3	1.11	1.054	0.552	0.717	-0.546	1.4
Uncertainty	9	0	22	7.11	7.656	1.075	0.717	0.284	1.4
Valid N (listwise)	9								

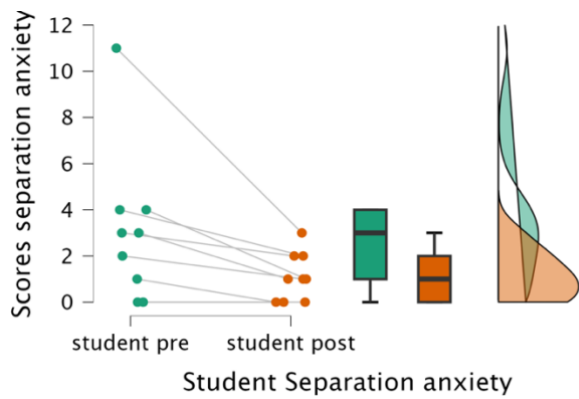


Figure 3: Students scores, separation anxiety pre and post.

between the overall scores, pre-intervention ($Median=18$, $SD=16.77$) and post intervention ($Median=12$, $SD=11.7$) $z= -1.13$, $p=0.222$. When considering the sub scales, there was a significant difference in Separation anxiety subscale, pre-intervention ($Median=3$, $SD=3.33$) and post intervention ($Median=1$, $SD=1.5$) $z= -2.338$, $p=0.017$, with a medium Cohen effect size of $d=0.43$ (Lakens, 2013). (Table 7 and Figure 3).

Table 7. Results for the Wilcoxon Signed-rank test for Student reported ASC-ASD

Variables	Pre-intervention			Post-intervention			Two-sided p
	Median	M	SD	Median	M	SD	
Total ASC-ASD	18	19.44	16.77	12	14.22	11.7	0.222
Performance							
Anxiety	5	5.44	4.39	2	2.56	2.24	0.061
Anxious Arousal	2	3.44	3.87	3	3.44	3.68	1
Separation Anxiety	3	3.11	3.33	1	1.11	1.05	0.017
Uncertainty	6	7.33	7.04	5	7.11	7.66	0.89

Result 3, ABC data

All staff members complete ABCs at the end of each day, reporting poor and concerning behaviours. Total ABCs were taken from the spring term, pre-intervention, and from the summer term, during the intervention, and were included in the analysis. Spring and summer term descriptives data can be viewed in Table 8.

Table 8. Descriptive Statistics, ABCs Spring and Summer terms

Descriptive Statistics ABCs pre- and post-intervention									
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis		
Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Total Spring term	9	0	96	35.22	37.319	0.779	0.717	-1.265	1.4
Total Summer term	9	0	48	18.22	20.352	0.562	0.717	-1.7	1.4
Valid N (listwise)	9								

Table 9. Results for the paired samples T-test for teachers' total ABCs.

Variables	Spring term		Summer term		Two-sided p
	M	SD	M	SD	
ABC totals	35.2	37.32	18.2	20.35	0.025

A summary of the results for the ABCs is in Table 9. A paired-samples T-Test was conducted to evaluate the impact the Forest School programme had on negative behaviour within the school. There was a statistically significant difference in the amount of negative behaviour reported during the Spring term ($M=35.22$, $SD=37.319$) and the Summer term [$M=18.22$, $SD=20.352$, $t(8)=2.762$, $P>0.05$], with a

significance value of $p=0.025$, with a medium Cohen effect size of $d=0.48$ (Lakens, 2013). The rainbow cloud plot (Figure 4) shows the difference between the number of reports for each participant between the spring and summer term.

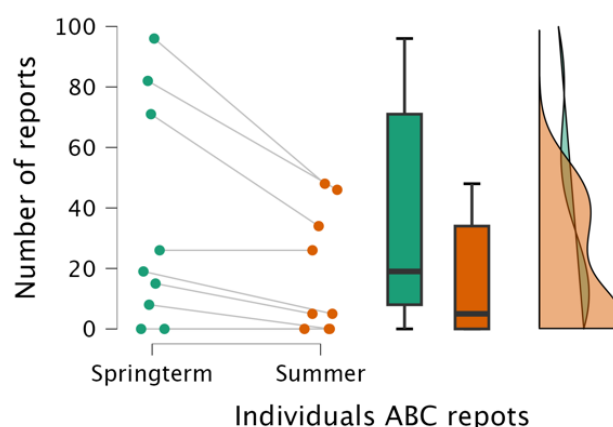


Figure 4: ABC reports, Difference between reports made about individuals in the spring and summer terms.

Qualitative Findings

The answers given by both the participants and the teachers fitted well with the themes of the 'Five Ways to Wellbeing' theory, as shown in Table 10, and were categorised appropriately. Some of the five ways were then broken down into subgroups, such as *Connect* was broken down into 'relationships', 'with nature' and 'with people'. Below the table, are examples of the comments by participants and teachers linking to each of the 'Five Ways', followed by more detail on those responses (Finding 1) and how staff described the impact of the intervention on the school and participants (Finding 2).

Finding 1: the Five Ways to Wellbeing

The Five Ways to Wellbeing were all present through the intervention, and came through strongly in the interviews.

To connect: was the most popular theme from the interviews, especially connecting with other people, which was mentioned by all 14 interviewees. Many of the activities allowed for the

Table 10 Links with 'Five Ways to Wellbeing' Created using Nvivo as part of the data analysis procedure

Name	Files	References	Created on	Created by	Modified on	Modified by
<i>To connect: 5 Ways to Wellbeing</i>	11	37	18/10/2023	MJC	23/11/2023	MJC
building relationships	7	12	18/10/2023	MJC	24/10/2023	MJC
with nature	8	18	1/11/2023	MJC	23/11/2023	MJC
with people	14	36	19/10/2023	MJC	23/11/2023	MJC
<i>To be active: 5 Ways to Wellbeing</i>	13	29	18/10/2023	MJC	12/11/2023	MJC
Blue therapy	6	9	1/11/2023	MJC	12/11/2023	MJC
Green therapy	10	13	1/11/2023	MJC	12/11/2023	MJC
increased time outdoors	11	27	18/10/2023	MJC	12/11/2023	MJC
<i>To keep learning: 5 Ways to Wellbeing</i>	13	35	19/10/2023	MJC	12/11/2023	MJC
<i>To take notice: 5 Ways to Wellbeing</i>	11	19	18/10/2023	MJC	23/11/2023	MJC
Technology, Interesting, disconnect with stress	2	6	18/10/2023	MJC	24/10/2023	MJC
<i>To give: 5 Ways to Wellbeing</i>	4	4	19/10/2023	MJC	2/11/2023	MJC
to Nature	1	1	2/11/2023	MJC	2/11/2023	MJC

opportunity to connect with people in a group task, or nature, so it may be no surprise that it was the most commented theme. The participants mainly valued these sessions. They recognised the time it gave them to connect, particularly with other people but also with nature. One said: *I like that we were all together, like working together too* (ST1). Another commented that: *everyone was quite cooperative... There wasn't much trouble* (ST4). This time together forged new relationships: *In school no one seems to really like talk to each other. But when we're out on the trip, like, everyone sorts of comes together* (ST2). This was also noted by the faculty: *with the slight gender divide between the girls and the boys, your projects... got them to learn to work together* (FM1). The new friendships and reduction of the gender divide made a difference to the general feel around the school.

To be active: was also mentioned frequently, in particular, increased time outdoors which was mentioned by 11 of the 14 interviewees, eight of which were participants. This could

demonstrate that the participants valued the intervention as it was not something many of them did on a regular basis, one commented: *I'm just quite reclusive* (ST5); this could partly be due to their autism, compounded by urban living. Exploring the environment with purpose in Orienteering, resonated with most of the young people. One enjoyed *walking through the woods and also like kind of knowing where you are but also getting to like explore* (ST3), while for another this combined with **connecting**: *we had like try to think where to go, make sure it's not wrong. Find all the codes I think and... work together* (ST9). It was not a hit with everyone. One described it as: *a lot of just looking for signs with numbers* (ST4). A faculty member noted how the engagement in the activity helped with overcoming physical and mental discomfort as they were surprised they *went through the bushes and trees and just went for it and got, you know, stung on their legs and all that... they were so, like up for it* (FM2).

To keep learning: was the second most popular theme, mentioned by all but one of the interviewees. The joint experience of learning new skills, built relationships and may have contributed to a reduction in performance anxiety as seen through the teachers ASC-ASD questionnaire. Some of the participants talked about how the skills helped them to **connect** with nature. One enjoyed *identifying the trees* (ST5) and linked it to *specific wood they need to light the fire* (ST5). Another *developed my map skills* (ST8). One had learnt *how to work together in a groups* (ST1) which would have added to their **connecting** to each other. This was echoed from the faculty: *having to be in groups...and do things that way was something new for them. ... kids really struggle with... cooperation with each other... that was really nice* (FM4). In learning to light fires one had *conquered my fear of fire* (ST2). Some skills kept them **active** like learning *how to... row a boat* (ST4).

To take notice: was the second-least commented theme, yet it is clear from some of the art work (pictures A-C below) that the participants were taking in their surroundings. *I like trying to look at things on a map, trying to find, locate that place in real life* (ST8), taking notice of their surroundings. One said *I actually find it [being in nature] better because normally I'm always on my phone* (ST1), allowing her to be in the place and take notice. Participants were given several opportunities to create art (Pictures A, B, & C). This was time to really take notice of surroundings, through the collection and use of the materials and through being in that place. One student said that during these opportunities they were *Actually very relaxed and more like I could breathe more* (ST1). A participant pointed out *Arrow root* and that *we... could make some tea.. tastes like grass* (ST3). Faculty noticed a change over time as students felt the

environment was more familiar: at first they were a *bit wary of going...when we went back [they] were starting to pick flowers... and then kind of say ohh, you know, yeah, do you know what that flower is they're wearing in their hair?* (FM3). This shows that the more comfortable



Picture A, Charcoal drawing of a tree the participant could see. The charcoal was from a campfire.



Picture B, Participant creating Hapa zome, meaning "leaf dye", it is a Japanese printmaking technique that uses the natural pigments in leaves and flowers, that they collected.



Picture C, A collection of water colours by the participants of vistas that they could see.

the participant became in the surroundings the more able they were to *take notice*.

To give: This was the least commented theme, but this may be due to there being few direct questions regarding the volunteering. While it did not come up much in the interviews, when asked did you enjoy the volunteering, one replied with a simple *Yeah* (ST7) and another enjoyed giving back to the environment (ST5). They built a bug hotel (Picture D), created a display



Picture D, Participants standing next to the bug hotel they built from old pallets, sticks and logs.



Picture E, A participant standing next to a display of birds that they put up, of the different types of birds they can see from the bird hide.



Picture F, A participant removing an invasive species of plant.

board in a bird hide to help other bird watchers identify birds they might see (Picture E), and helped to remove some invasive species of plants (Picture F).

All of the participants said that they enjoyed the sessions, three said they would like to do more and would like to find others to do it with such as family members (ST1&3) or join their local scout group (ST2). The rest said they would continue to do more if it was organised for them. This may show that while we saw a reduction in some of the anxiety sub-scales, the participants did not recognise it as a method to reduce anxiety, but that enjoyment of the activities would keep them coming back.

Finding 2: staff comments on the school and participants

Faculty members were asked how they thought the intervention had affected the school and the participants. They discussed three themes: *school behaviour*, *school atmosphere* and *student anxiety levels*.

School behaviour: attendance was affected in a positive way, as noted by a faculty member. This was a big step for many participants, for example one who previously *wouldn't come to school at all* but who due to the sessions in the forest on Fridays was *here every Friday morning on the dot without fail* (FM1). FM4 said another student *showed up and that was like no one asked him to. ... He knew it was happening and he came*. From the ABCs data there was a decline in the number of behaviour concerns reported, and although one faculty member suggested that in the summer *the days are longer, and everyone is a little bit more relaxed* (FM3), it is also the exam season, when anxiety levels can run high, which can lead to poor behaviour.

School atmosphere: one faculty member said the intervention had been *a really lovely way of bringing the community together... It's allowed staff to talk more to the children in a way in which a school environment might not allow* (FM1). Another said *I think it's actually helped the staff gel... it does not feel so much like it's the teachers in their classroom and that is their area. Everyone... pulls together as a team* (FM5). The atmosphere amongst the students was also positive, with the *buzz* around [the intervention] (FM4) and on returning to the school staff were surprised by the positive atmosphere as other trips often lead to a challenging period

afterwards: *Young people would normally come back and ... struggled to engage in normal lesson time. But actually we've never had a problem* (FM1).

Student anxiety: Staff were asked if they thought that the intervention had helped the students with their anxiety levels. Here staff were not as certain. Teachers highlighted the individual nature of anxiety within the autistic community of the school, one said *That's a really hard one to quantify... it's all kind of a mixing pot, like everything strands together... anything that helps you go to the edge of what your comfort zone is and push it a little bit further is...really key* (FM3). Another said *I don't know. I don't have like, a formal reading of it. I think it might have... their anxiety of doing things that are unknown to them, I think that's what makes a lot of our kids here anxious* (FM4). This was echoed as *a lot of them get some anxiety going out to places and doing things that they're not 100% prepared for and I think it's helped them to overcome that a little bit* (FM5). However, others were more certain: *I do think it has helped a lot with the anxiety* (FM1), *... they came back calmer; I think there was less behavioural issues* (FM5).

These key results and findings will be taken forward in the next chapter, which discusses them against the literature.

Chapter 5: Discussion

Overall Indications

The aim of the study was to examine the effect a Forest School intervention had on the anxiety levels of students with moderate autism and other SENDs in the school environment. This section will discuss the results and findings, which suggest that the intervention did help reduce anxiety subscales in the participants and that this had a positive effect on school behaviour. The disconnect between the student and staff results and the variation along gender lines will also be discussed. Finally, limitations of the study will be recognised with suggestions of how and why these should be considered when conducting further research in this area.

As a result of the intervention there was no reduction in overall anxiety (Total ASC-ASD table 4: teacher data $P=0.289$ and table 7: student data $P=0.222$). However, (in Result 1) teachers reported a reduction in performance anxiety and anxious arousal (Table 4: $P=0.021$ and $P=0.05$ respectively), while (in Result 2) students reported a reduction in separation anxiety (Table 7: $P=0.017$). Result 3 suggests that there was an improvement in behaviour, with fewer negative behaviours (Table 9: $P=0.025$) reported during the summer term, when the intervention was held. Finding 1 links the Five Ways to Wellbeing (Aked, *et al.*, 2008) connection to the intervention and how it related to the participants overall experience. Finding 2 shows how staff thought the intervention had affected the school and the participants. They discussed three themes: *school behaviour*, *school atmosphere* and *student anxiety levels*. These facets of anxiety will be discussed, utilising literature to shed light on the results and findings of this study.

Anxiety subscales: anxious arousal, separation anxiety and performance anxiety

Anxious arousal is physiologically connected to disruptive behaviours including fidgeting and aggression (Ehmke, 2023) through the fight or flight response. Therefore, the reduction in this subscale in the teacher-reported data may be linked to the reduction of reported negative behaviours (Table 9) and the positive changes reported by faculty members (Finding 2) in school atmosphere. Interestingly, there was no real distinction made between the time directly after the intervention and the rest of the week. It was noted there was a *buzz about it* (FM4), this could link in with the finding of Maund, *et al.* (2019), who talked about how suffers of anxiety used the memory of, and looking forward to, the next session as a way to manage their

anxiety levels. Blackham, *et al.* (2021) similarly note how participants use the memory of moments of calm to reduce anxiety in the present. This may call into question the findings of Carey, *et al.*, (2022) who suggested that reduction in anxiety levels only lasts a few hours. However, this research focused on exercise alone, while Maund's had elements of physical activity and being in nature. This could be the key difference in the longevity of impact. Understanding this longevity could inform the timing of interventions and help a young person manage their anxiety through self-regulation methods when events are coming up, that may trigger spikes in anxiety levels. However, it may not be that there is a time-limited effect as such, but more the need to have regular sessions. This may play into the security of routine (Lord, *et al.*, 2018), as well as allowing for a session to look forward to or a recent memory to access. This regularity may also be why studies around anxiety and wellbeing that use Forest School as an intervention have shown it to have positive outcomes (Dabaja, 2022; Manner, *et al.*, 2021; Maund, *et al.*, 2019), as the first key principle of Forest School states: 'It is a long-term process of frequent and regular sessions in a woodland or natural environment' (Forest School Association, 2017) and similarly slow adventure facilitates immersive experiences rather than isolated interventions (Allan, *et al.*, 2020).

Separation anxiety can significantly impair daily activities and developmental tasks (Behmanesh, *et al.*, 2023, p. 17); building a sense of community may help to reduce it. Stewart & Townley (2020) conducted a meta-analysis looking into people's sense of community and wellbeing, finding a positive relationship, but there is limited research explicitly discussing how separation anxiety can be reduced through connecting with people and communities. Nonetheless, it could explain the student-reported reduction in separation anxiety (Table 7), the frequency with which they mentioned *connecting* (Table 10 and Findings 1) in their interviews, and the staff-reported positive change in the school atmosphere, as Forest School helps create a sense of community. Blackham, Cocks and Bunce (2021)'s research through a social constructionism lens concluded that Forest School had three interconnected themes: Space, Sense of Community and Power-shared Pedagogy, which build micro-communities. Forest School uses a learner centred approach to create a community for learning and development (Forest School Association, 2017), while the five ways to wellbeing highlights the need to *connect* with the communities around us (Aked, *et al.*, 2008). Zarra-Nezhad, *et al.* (2023) suggest participant-centred play therapy had a positive influence on separation anxiety in children but did not try to understand why, and Rugel, *et al.* (2019) found a small negative association between community around urban natural environments and clinical mental health

diagnoses. These studies lend weight to the suggestion that learner-centred activities in natural environments that facilitate development of community can help reduce separation anxiety. Power-shared pedagogy may also have a part in helping to reduce separation anxiety. This approach allows either the participants to learn from one another, or for the leader and the participant to learn alongside one another (Blackham, *et al.*, 2021). This can help to further build community and can help to develop emotional and social skills through negotiation of resources; learning to manage conflict with limited adult intervention; forming relationships; discussing thoughts and feelings (Blackham, *et al.*, 2021), and this too may help explain the reported reduction in separation anxiety, as the building of relationships beyond their attachment character helps to build elements of the affective domain such as self-confidence and self-esteem (Williams & Wainwright, 2016) and thus the confidence to move away from an attachment character. This may help to explain why different activities in nature generate different impacts: in a Forest School context the perceived risk that the participants are taking, is making friends and developing relationships, rather than the perceived risk of abseiling down a rockface in a fast adventure context, though in both cases they are learning to manage feelings of fear and self-doubt (Priest, 2023).

Power-shared pedagogy may also have helped in the reduction of performance anxiety, noted in the teacher questionnaires (Table 4). Adams (2023) suggests that, from growing neuropsychological evidence, performance anxiety operates in a pro-adaptive paradigm in which the brain protects a person's emotional safety, much like the nervous system helps to protect our physical form. Giving the participants the opportunity to lead the learning helps to motivate them, leading to an increase in self-directed curiosity and eagerness to explore (O'Brien, 2019). Blackham, Cocks and Bunce (2021) propose that shared pedagogy helps to establish an equal relationship, giving participants confidence to lead their own learning, model positive behaviours, and be led by the process not the outcome. This in turn potentially reduces the perceived risk of failure, allowing a person to manage their own emotional safety. This may also be strengthened through the development of personal relationships, which are highlighted in the Five Ways to Wellbeing.

The impact of the intervention on the students' wellbeing was evident (Findings 1). *Connecting* was the most prominent theme in the student interviews, showing the value the students put on developing relationships with their peers. The building of community and relationships and reduction in performance anxiety gave the young people the emotional resilience to take part

in new and unknown tasks, but also confidence to share knowledge with the group (Findings 1, *To take notice*). The development of these relationships may have contributed to a reduction in performance anxiety, as the students had been learning, failing and succeeding together and therefore felt less individualised anxiety about performance as there was less risk of negative social evaluation by their peers. The importance that the students placed on the development of *connecting* with people resonates with the findings of Hickey, *et al.* (2018) who found that feelings of isolation and loneliness are common themes for people with an autism diagnosis, and this may at least partially be because anxiety can be a barrier to connecting with others (Sapiro & Ward, 2020). Therefore, the reduction in some anxiety subscales, and the nature of the intervention itself, worked together to enable the young people to successfully build relationships and a sense of community, that they very much valued due to their challenges, which likely fed into lower anxious arousal and therefore fewer behaviour incidents, and was noted in the school environment as improved atmosphere.

Disconnect between staff and student scores

It was noticed during the data collection and processing phase that there was a disconnect, not only between the staff and student scores for the ASC-ASD questionnaires, but also that the disconnect was gendered, and this requires consideration. Staff generally scored boys with higher levels of anxiety than the boys themselves did, and scored the girls lower than the girls themselves did, but there is limited direct research on this issue. Carey *et al* (2022) reported a disconnect in reported anxiety levels, with teachers reporting higher levels than parents, but school requires social interactions and greater academic demands. A meta-analysis by Adams *et al* (2019) found only a small number of studies that compared student scores with either parents or teachers. Barnhill, *et al* (2000) found that students scored themselves lower than teachers or parents, but did not look at gender as there was only one female participant, and there was limited discussion of the low self-reported figures apart from surmising ‘lack of awareness or denial’ (p. 162). Similarly, a study by Hammond & Hoffman (2014), also with one female participant, claimed participants ‘might be less aware of how anxiety symptoms differ from the manifestations of autism’ (p. 258).

This led to wider investigation about the causes of the disconnect in the data. Questionnaires have advantages; they can be time efficient, have a high return rate and have standardised questions (Munn & Drever, 1990), but they can also generate socially desirable responding

(van de Mortel, 2008), or social camouflaging (Hull, *et al.*, 2021), which is ‘the use of strategies by autistic people to minimise the visibility of their autism in social situations’ (Hull, *et al.*, 2021, p. 2) and mask aspects of their condition (Alaghband-rad, *et al.*, 2023). There are unconscious aspects to it, making it a self-protective mechanism (Pearson & Rose, 2021). Strategies can include, suppressing stimming behaviour in public (Hull, *et al.*, 2017) and a repertoire of compensatory behaviours such as learning how to use non-verbal cues, such as eye contact and the development of scripts to navigate social situations (Lai, *et al.*, 2017). This may also translate into giving socially desirable responses, conscious or unconsciously, in a self-reporting questionnaire.

This aspect also may help to explain the gendered element to the disconnect in the data. Alaghband-rad *et al* (2023) suggest that high functioning females with ASD are better at masking their symptoms than their male counterparts, as female peer groups give time to learn and develop camouflaging and masking strategies. Meanwhile, neurotypical boys tend to play organised games, leaving boys with ASD playing on their own (Dean, *et al.*, 2017). This difference in the type and complexity of social interaction, give different camouflaging skills. This could explain why teacher and student results differ along gender lines. Camouflaging can be made more complicated due to a disconnect with a person’s interoception (Pearson & Rose, 2021), the ability to notice internal sensations and translate these into meanings, such as anger, hunger or tiredness (Hample, *et al.*, 2020; Lischke, *et al.*, 2020). DuBoisa, *et al* (2016) suggested that while there was limited data on the subject, those with ASD do have errors in interoception. There has also been some research looking into the relationship of gender and interoception, with female participants tending to have a better understanding of their bodily sensations and how they connect to their emotions (Grabauskaite, *et al.*, 2017) and while this study did not mention ASD it did consider other mental disorders such as anxiety. Therefore, all this may explain the gendered disconnect between staff and student scores in the questionnaire: the girls’ masking may be more successful, as they have a more secure interoception than the boys.

Chapter 6: Conclusion

This study did not find evidence of a significant reduction of anxiety *overall*, and therefore accepts the null hypothesis (H_0) that time in the outdoors and in nature has no statistically significant impact on the level of anxiety experienced by young people with autism. However, there were statistically significant reductions in three of the four subscales measured on the ASC-ASD questionnaires, so while *overall* anxiety was not reduced, anxious arousal, performance anxiety and separation anxiety saw significant reductions. These subscales are in a range of ways relevant to a school setting and therefore this implies that participating in Forest School and slow adventure activities *does* have value to those with ASD and their educators, through a reduction in *specific aspects* of anxiety. Therefore, although the study accepts the null hypothesis for overall anxiety, anxiety is multifaceted and complex in nature, and individuals experience the aspects in varying degrees. The specificity in terms of the aspects of anxiety impacted, was not in the original alternative hypothesis (H_1), which expected a positive effect on anxiety *overall*, but since a majority of subscales saw a significant reduction, we can conclude that the study does indicate the value of these activities for young people with ASD. Aked *et al.*'s (2008) Five Ways to Wellbeing was used to help thematically categorise the interviews, with **connecting** and **learning** being the two most popular themes and possibly having the greatest impact on the anxiety subscales.

The more specific conclusions drawn from the study are threefold. Firstly, a reduction in anxious arousal contributed to the reduction of negative behaviours reported, helping create a more stable school atmosphere throughout the week, as noted by staff. The regularity of the intervention gave the participants the opportunity to combine the use of memory and looking forward to events that are calming, confirming research by Blackham, *et al.* (2021) and Maund, *et al.* (2019). The longevity of the intervention's impact in the school environment may partially challenge the work of Carey, *et al.*, (2022) who suggested that interventions have a time-limited effect on anxiety, but they only considered physical activity rather than activity in nature, suggesting that activity in nature have a longer-lasting effect than physical activity in general. So regular, longstanding, Forest School activities helped to create a stable school atmosphere.

Secondly, a reduction in separation anxiety and performance anxiety was supported by two factors; building a sense of community and a power shared pedagogy approach (Blackham, *et*

al., 2021). The student interviews showed that they valued **connecting** with their peers, as it was the most talked about of the Five Ways to Wellbeing; staff reported more integration between student groups. The data in this area confirms the research of Stewart and Townley (2020) and Rugel, *et al.* (2019) as they found that a sense of community had a positive relationship with feelings of wellbeing. The findings of Blackham, *et al.* (2021) help to explain the mechanism of how Forest School activities may reduce separation anxiety, as they suggested that a power shared pedagogy approach, learning alongside leaders and each other, helps participants develop emotional and social skills beyond a young person's attachment character and therefore reduces separation anxiety. A reduction in performance anxiety may have also been facilitated by the combination of community and shared pedagogy. By **learning** together, they possibly developed lowered individualised performance-based anxiety due to feeling a lower risk of negative social evaluation, as seen in the study by Blackham *et al* (2021), where participants were increasingly led by the process. There is little research around how performance anxiety affects young people with SENDs in the classroom, yet it could be a driver of disruptive behaviour and therefore link to the reduction in reported behaviour incidents over the period of the intervention.

Finally, an unexpected aspect of the results was the gendered disconnect between the student and staff results. Other studies had noted differences between participants and teachers or parents (Adams, *et al.*, 2019; Barnhill, *et al.*, 2000; Carey, *et al.*, 2022). However, these studies had very few female participants, so had not seen a gendered difference, while this study did. This may be due to a difference in interoception, which has a higher error rate in people with ASD (DuBoisa, *et al.*, 2016), and girls having better emotional awareness (Grabauskaite, *et al.*, 2017) might help us to understand the gendered disconnect, though further research would be needed to understand it more fully.

Limitations of this study and opportunities for further research

There are various operational limitations of this study, in terms of timescale, and methods. The student interviews and post- questionnaires took place before the Week 11 final expedition due to the logistics of access to students and timings of the end of term falling very soon after that expedition date. While the expedition was not the focus of the intervention it did help to pull together everything the students had been working towards and may have given them a bit more context as to why we did what we did, giving them a better understanding.

Another limitation relates to methods, in particular the lack of observational notes within the study, and the avoidance of direct questions about anxiety in the interviews. Originally the reason for using an outside provider to deliver the intervention was to allow for observation, however, due to the nature of the students and the relationship I had with some of them, I was required to help with emotional regulation and social skill development. Future studies of this nature may require an observer who is disconnected from the group, doing targeted observations. During the interviews I did not ask questions directly about anxiety so as not to trigger the students, and while this was a valid reason, asking direct questions might have helped the students to recognise how it helped them manage anxiety. This could have been done in conjunction with another facilitating staff member, helping them through feelings of fear and self-doubt, through coaching, practice and guided reflection (Priest, 2023). However, this would need close attention to avoid interviewees being led.

A final limitation relates to the extent to which conclusions can be drawn from the drop in negative behaviour incidents over the period of the intervention. The lower number of reported negative behaviour incidents in the summer term could have been down to a combination of factors, such as lighter days in summertime, and increased familiarity with the school for students new to the school that year, rather than just the intervention, as suggested by a faculty member (Findings 2, school behaviour). I could have compared with behaviour data across the whole school ie. including non-participants, to see if there was an overall drop in behaviour incidents from spring term to summer term, and if so I could have checked whether the drop in behaviour incidents amongst the participants was significant even when correcting for a school-wide drop.

Further areas of study could include distinguishing between time in nature/ nature connection and particular activities conducted in nature, this would help to further understand what benefits the participant more, spending time in nature, particular activities, or the combination. Further study around the apparent links to gender in terms of how students and teachers perceived their anxiety should also be considered; this was not one of the main aims of this research project and so was noted rather than fully analysed, and would require a larger-scale study. Understanding the difference in masking abilities and how interoception differs between the genders implies that this needs consideration when both developing and utilising anxiety questionnaires, as well as for staff training. This may have contributed to the disconnect between student and staff scores; the impact of masking and interoception was also highlighted

by a faculty member (Finding 2, student anxiety) as even verbalised comments might not accurately represent the feelings of the student.

In the SEND school from which the participants of this study were drawn, the impact of the intervention was seen to be overwhelmingly positive, such that Forest School and slow adventure have now become a permanent part of the curriculum. This study therefore strongly implies that there is significant value in productive and mindful time in the outdoors for students with ASD.

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Appendices

Appendix 1, Anxiety Scale for Children – Autism Spectrum Disorder – Child version (ASC-ASD)©

Jacqui Rodgers, Sarah Wigham, Helen McConachie, Mark Freeston, Emma Honey, Jeremy Parr
Newcastle University, Newcastle UK

Name/ID: _____ Date: _____ Age: _____

Please put a circle around the word that shows how often each of these things happen to you. There are no right, or wrong answers.

1. All of a sudden I feel really scared for no reason at all	Never	Sometimes	Often	Always
2. I worry what other people think of me	Never	Sometimes	Often	Always
3. My heart suddenly starts to beat too quickly for no reason	Never	Sometimes	Often	Always
4. I feel scared when I have to take a test in case I make a mistake	Never	Sometimes	Often	Always
5. I worry people will bump into me or touch me in busy or crowded environments	Never	Sometimes	Often	Always
6. I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds) in case I am separated from my family	Never	Sometimes	Often	Always
7. I worry that I will do badly at my school work	Never	Sometimes	Often	Always

8. I suddenly feel as if I can't breathe when there is no reason for this	Never	Sometimes	Often	Always
9. I am afraid of new things, or new people or new places	Never	Sometimes	Often	Always
10. I am afraid of entering a room full of people	Never	Sometimes	Often	Always
11. I worry when I go to bed at night because I don't like to be away from my parents/ family	Never	Sometimes	Often	Always
12. When I have a problem I feel shaky	Never	Sometimes	Often	Always
13. I suddenly start to tremble or shake when there is no reason for this	Never	Sometimes	Often	Always
14. When I don't know what will happen, I can't do things	Never	Sometimes	Often	Always
15. I worry when I think I have done poorly at something	Never	Sometimes	Often	Always
16. I always need to be prepared before things happen	Never	Sometimes	Often	Always
17. I feel afraid that I will make a fool of myself in front of people	Never	Sometimes	Often	Always
18. I worry about being away from my parents	Never	Sometimes	Often	Always
19. I worry that something awful will happen to someone in my family	Never	Sometimes	Often	Always
20. I would feel scared if I had to stay away from home overnight because I like to be close to my parents/ family	Never	Sometimes	Often	Always
21. I worry about being in places that are too loud, or too bright or too busy	Never	Sometimes	Often	Always
22. I suddenly become dizzy or faint when there is no reason for this	Never	Sometimes	Often	Always
23. I worry if I don't know what will happen e.g. if plans change	Never	Sometimes	Often	Always
24. I worry that something bad will happen to me	Never	Sometimes	Often	Always

Appendix 2, Anxiety Scale for Children – Autism Spectrum Disorder – Parent version (ASC-ASD -P) ©

Jacqui Rodgers, Sarah Wigham, Helen McConachie, Mark Freeston, Emma Honey, Jeremy Parr
Newcastle University, Newcastle UK

Name of child: _____

Age of Child (years/months): _____

Date: _____

Relationship to Child: _____

Please put a circle around the word that shows how often each of these things happens for your child.

1. My child suddenly gets a scared feeling when there is nothing to be afraid of	Never	Sometimes	Often	Always
2. My child worries what other people think of him/her e.g. that he/ she is different	Never	Sometimes	Often	Always
3. My child's heart suddenly starts to beat too quickly for no reason	Never	Sometimes	Often	Always
4. My child feels scared when taking a test in case they make a mistake or don't understand the questions	Never	Sometimes	Often	Always
5. My child worries that people will bump into him/ her or touch him/ her in busy or crowded environments	Never	Sometimes	Often	Always
6. My child is afraid of being in crowded places (like shopping centres, the movies, buses, busy playgrounds) in case he/ she is separated from his/ her family	Never	Sometimes	Often	Always
7. My child worries about doing badly at school work	Never	Sometimes	Often	Always

8. My child suddenly feels so anxious he/ she feels as if he/she can't breathe when there is no reason for this	Never	Sometimes	Often	Always
9. My child is afraid of new things, or new people or new places	Never	Sometimes	Often	Always
10. My child is afraid of entering a room full of people	Never	Sometimes	Often	Always
11. My child worries when in bed at night because he/ she does not like to be away from his her parents/ family	Never	Sometimes	Often	Always
12. When my child has a problem, he/she feels shaky	Never	Sometimes	Often	Always
13. My child suddenly starts to tremble or shake when there is no reason for this	Never	Sometimes	Often	Always
14. Feeling unsure stops my child from doing most things	Never	Sometimes	Often	Always
15. My child worries when he/she thinks he/she has done poorly at something in case people judge him/ her negatively	Never	Sometimes	Often	Always
16. My child always needs to be prepared before things happen	Never	Sometimes	Often	Always
17. My child feels afraid that he/she will make a fool of him/herself in front of people	Never	Sometimes	Often	Always
18. My child worries about being away from me	Never	Sometimes	Often	Always
19. My child worries that something awful will happen to someone in the family	Never	Sometimes	Often	Always
20. My child feels scared to be away from home because his/ her parents are familiar with his/ her bedtime routine	Never	Sometimes	Often	Always

21. My child worries about being in certain places because it might be too loud, or too bright or too busy	Never	Sometimes	Often	Always
22. My child suddenly becomes dizzy or faint when there is no reason for this	Never	Sometimes	Often	Always
23. My child worries if they don't know what will happen next e.g. if plans change	Never	Sometimes	Often	Always
24. My child worries that something bad will happen to him/her	Never	Sometimes	Often	Always

Appendix 3, Student interview question

1. I'm interested in what you thorough of the outdoor curriculum you have just finished?
2. Before this, how much time would you say you spent outside in nature?
3. Can you tell me what you enjoyed about the curriculum and why?
4. Can you tell me what you didn't enjoy and why?
5. Are these things you have done before? (Team building, canoeing, woodland management, shelter building, fire lighting, orienteering, expedition)
6. I'm interested in how you feel about spending time outside in nature now compared to before?
7. What do you think you have learnt while you have been here?
8. Do you think that you would like to continue doing any of the activities we have done over the last term and why?
9. I'm interested in how doing these activities made you feel? Generally and activity specific.
10. How did you feel about the spaces we used throughout the project? (Lake, wood land area) did it change the way your thought about the people or the place.

Appendix 4, Teacher interview question

- 1, What your thoughts on the project?
- 2, What your thoughts on the types of activities and how they came together?
- 3, What do you think the young people have gained from it?
- 4, Do you think it's helped with their anxiety levels?
- 5, Have you noticed any changes to the atmosphere in the school since starting the project generally and on a day-to-day basis?
- 6, Do you think the young people have responded to the project?
- 7, Any negative outcomes from the project?
- 8, did you notice any unexpected outcomes?

Appendix 5, Provider risk assessments 1, Forest school activities

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – FOREST SCHOOL ACTIVITIES GENERIC RISK / BENEFIT ASSESSMENT BY PHIL ATKINSON & MARK UNDERWOOD – MARCH 2022

 RISK / BENEFIT ASSESSMENT		
This Risk / Benefit Assessment has been prepared as a “generic” document and is used to guide Forest Leaders to incorporate appropriate controls into the Phoenix Forest School’s planning and activities, to provide reduced or minimized risk at a level appropriate to the participants. Risk Benefit Assessments are like Risk Assessments but with a clear emphasis on the benefits as well as the risks. To do this a judgement is made on the level of risk, and a judgement is made on the level of benefit. These are then compared to see if the activity is worth doing. In addition to this document, the Forest School Leader should carry out a Daily Risk Assessment including weather forecast / temperatures, ground conditions, group size and history, user group / individuals, planned activities, equipment needed, site visit conducted, group confirmed, other Centre activities / restrictions. A dynamic risk assessment should be carried out continually during the activity session. This should include counting heads, checking supervision is in place and adequate, “stranger danger”, falls from heights assessment, managing the safety of the area, etc. Any risks identified should have appropriate control measures introduced and noted in the Daily Risk Assessment after the session.		
Probability Score: 1. <5% chance that it will occur – very unlikely 2. <25% chance that it will occur 3. <50% chance that it will occur 4. <75% chance that it will occur 5. >95% chance that it will occur – very likely	Severity Score: 1. Not serious – no first aid required 2. Minor Injury – requiring basic first aid 3. Injury – requiring non immediate professional medical attention 4. Serious injury/multiple injuries – requiring immediate medical attention 5. Major accident – multiple injuries or fatality	Calculate the risk levels: The rating is calculated from the probability multiplied by the severity which will give a rating between 1 & 25. Phoenix Outdoor Centre will not be carrying out any activities deemed to have a revised rating of over 12 as they are deemed too dangerous. Combined Points score of : 1-6 = Low risk; 7-12 = Medium risk; 13-25 = High risk

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – FOREST SCHOOL ACTIVITIES
 GENERIC RISK / BENEFIT ASSESSMENT BY PHIL ATKINSON & MARK UNDERWOOD – MARCH 2022

RISK / BENEFIT ASSESSMENT KEY	
GUIDING PRINCIPLES OF RISK / BENEFIT ASSESSMENT • An element of risk is an essential part of children’s development through play • This process focuses on the benefits to children and the risks to children • The reasons (benefits) give the context from which to judge the risk • Benefits must be great enough to warrant the associated level of risk and be maximised without creating unnecessary risk • Risks should be minimised without losing major benefits • Risk Benefit Assessments should capture the risks, the benefits and the reasons for the judgements of safety • Risk Benefit Assessments are a useful planning tool, or decision making tool as well as a supporting document to demonstrate a considered approach <i>“Play is great for children’s well-being and development. When planning and providing play opportunities, the goal is not to eliminate risks, but to weigh up the risks and benefits. No child will learn about risk if they are wrapped in cotton wool”</i> Health & Safety Executive (HSE) 2012 GENERAL BENEFITS G1 – Strengthens the community G2 – Saves money / resources / work G3 – Encourages more people to play G4 – Provides good role models G5 - Respect for nature & conservation	PHYSICAL BENEFITS: Improved: P1 – Co-ordination P2 – Fine motor skills P3 – Gross motor skills P4 – Strength P5 – Stamina – cardiovascular & aerobic fitness MENTAL BENEFITS: Improved: M1 – Problem solving skills M2 – Decision making skills M3 – Risk awareness & judgement (physical & emotional risks) M4 – Sense of self / autonomous thinking M5 – Independence M6 – Sense of place in the world / belonging M7 – Understanding of, and connection to, the world M8 – Social skills – communication, negotiation, relationship building M9 - Responsibility / looking after each other M10 – Awareness of other people M11 – Interest for understanding more EMOTIONAL BENEFITS: Improved: E1 – Confidence E2 – Resilience E3 – Recognition of emotions & ability to respond appropriately E4 – Ability to work through emotions E5 – Feeling of controlling one’s own life

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – FOREST SCHOOL ACTIVITIES
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HAZARD / RISK TO WHOM	PROBABILITY X SEVERITY	ACTION / RISK CONTROL MEASURES	REVISED RISK RATING P X S	RISK / BENEFIT ASSESSMENT (REFER TO KEY ON PAGE 2 OF ASSESSMENT)
Forest School activities				
General Risk - non-specific activities Staff, Volunteers, participants.	1 x 1 = 1 Low	• Ensure work area site is checked prior to participants arriving for dangers in horizontal and vertical planes • Ensure Forest School Team are fully briefed on activities taking place • Ensure all tools, craft materials, equipment required is packed and checked • Ensure First Aid and Burns Kit are packed and checked • Ensure emergency clothing suitable for group are packed and checked • Ensure VHF radios or mobile phones are fully charged and working • Ensure participants are welcomed, briefed for the session activities and participate in a group risk and safety agreement • FS Leader to take "Safety Briefing Sheet" and Planning Sheet for each activity planned • After session participants have left site, ensure work area site is checked, tools and equipment cleaned and stored • If needed update First Aid / Incident Accident Book and notify people required by the policy	1 x 1 = 1 Low	G3, G5, M3, M5, M7, M9, M10, E5
Trips and slips Staff, Volunteers, participants	3 x 3 = 9 Medium	• Brief all participants to watch out for mud, puddles, tree roots, uneven ground, holes etc. • Dangerous areas to be roped / coned off or marked with flags	2 x 2 = 4 Low	G2, G3, G5, P3, M2, M3, M7, M8, M9, M10, E1, E2, E5

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Climbing / falls from height Staff, Volunteers, participants	3 x 4 = 12 Medium	- Brief all participants that they can only climb trees when an adult is present and feet no higher than they can reach standing on the ground - Check tree for rotting or loose branches and check around base for hazards. Ensure no one stands directly below the tree climber - Brief all participants on the dangers of falling off / no pushing etc. on trees, logs etc	2 x 4 = 8 Medium	G5, P1, P3, P4, P5, M1, M2, M3, M8, M9, M10, E1, E2
Water / drowning Staff, Volunteers, participants	1 x 4 = 4 Low	- Brief all participants on the dangers of falling in the water. Keep away from the reservoir! - If fallen in, stand up, turn to shore and walk out – report to FS Leader	1 x 4 = 4 Low	G5, M2, M3, M9, M10, E5
Running / injury Staff, Volunteers, participants	2 x 3 = 6 Low	- Brief all participants to be careful when moving through wooded areas to avoid collisions with branches and twigs, especially around the eyes and face. Participants to be briefed on no running in woodland - Be aware of brambles, nettles and barbed wire fences and wear protective long sleeves and trousers - Make sure the participants are aware of the extra hazards posed when things are being carried - Ensure participants are carrying tools appropriately	1 x 3 = 3 Low	G3, G5, P1, P3, P5, M3, M4, M5, M7, M9, M10, E1, E2, E5
Public access Staff, Volunteers, participants	2 x 1 = 2 Low	- Brief all youth participants on “stranger danger” - Brief all participants how to behave around dogs and dog walkers in area - Brief participants to be polite to members of the public if they need to communicate with them	2 x 1 = 2 Low	G1, G3, M2, M3, M5, M8, M9, M10, E1, E3, E5

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – FOREST SCHOOL ACTIVITIES
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Separation from group Staff, Volunteers, participants	2 x 1 = 2 Low	- Instructors to count heads regularly - Participants to be briefed on finding their way back to main camp or POC. - Follow the procedure set out in the Forest School handbook	2 x 1 = 2 Low	G1, G3, M2, M3, M5, M8, M9, M10, E1, E3, E5
Equipment / injuries Staff, volunteers, participants	2 x 3 = 6 Low	- Briefing provided on the dangers of planks, crates, poles, hooks, ropes - All users should demonstrate safe technique and handling of equipment. - Use, transport and store all tools in line with the advice in the Forest School handbook	1 x 3 = 3 Low	G3, P1, P2, P3, M1, M2, M3, M5, M8, M9, M10, E1, E2, E5
Carrying / dragging Staff, volunteers, participants	2 x 3 = 6 Low	- Brief all participants on safe lifting practices - bend knees, straight back, slide and glide, care and share - Children can carry sticks on their own if shorter than their arm length - Longer sticks no longer than they are tall can be dragged behind them - Heavy sticks must be carried between two or more people - Ensure that participants are aware of the hazards associated carrying and dragging sticks and logs. - Understand the importance of clear communication when working with other people	1 x 3 = 3 Low	G2, G3, P1, P2, P3, M1, M2, M3, M5, M8, M9, M10, E1, E2, E5

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Using Sticks and Stones Staff, volunteers, participants	2 x 3 = 6 Low	- Sticks and stones must not be thrown unless part of a supervised activity - Using sticks as swords / toys must be kept below chest height and played carefully and without force - Participants to be briefed about dangers of injuries to head and body	1 x 3 = 3 Low	G2, G3, P1, P2, P3, M1, M2, M3, M5, M8, M9, M10, E1, E2, E5
Fires & Cooking Staff, volunteers, participants	3 x 4 = 12 Medium	- Ensure fires are sited in areas where they will not be a fire risk to trees or harm the environment. - All fires to be lit in metal fire pits or Kelly kettles - Brief all participants on safe use of fire site, wood collection, “respect” kneeling position in front of fire, use of gloves, walk around outside of fire circle, don’t step or lean over fires, etc - Ensure emergency water bucket or fire blanket available nearby - Ensure First Aid and Burns kit available - Ensure staff supervision suitable for the age and experience of the group - Make sure participants wash hands at each stage of preparing, cooking and eating food - Ensure all food prepared is fully cooked before eating - Check Parent Permission Forms for any information for dietary requirements - Ensure fires are extinguished and ashes disposed of – leave no trace!	2 x 4 = 8 Medium	G1, G2, P1, P2, M1, M2, M3, M5, M7, M8, M9, M10, M11, E1, E2, E5

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Natural crafts Staff, volunteers, participants	2 x 3 = 6 Low	- Brief participants No Picking or Licking - Brief participants on correct use of tools, “blood bubble” area for sharp tools - Ensure sufficient space and working room is available - Selection and safe handling of natural materials	1 x 3 = 3 Low	G3, G5, P1, P2, M1, M2, M3, M5, M7, M8, M9, M10, M11, E1, E2, E5
Playing games Staff, volunteers, participants	2 x 3 = 6 Low	- Ensure games are suitable for the age and experience of the participants and rules are agreed and applied - Brief participants on games area and what to do in the event of getting lost – consider use of whistles / “1,2,3 where are you” - Count heads regularly at intervals to suit age group - Ensure good supervision for scavenger hunts / wide games to suit age group	2 x 2 = 4 Low	G3, G5, P1, P2, P3, P4, P5, M1, M2, M3, M4, M5, M6, M7, M8, M9, M10, E1, E2, E3, E4, E5
Nature exploration Staff, volunteers, participants	2 x 3 = 6 Low	- Brief participants No Picking or Licking. - Brief participants on avoidance of skin irritations – nettles, brambles, thistles, thorns etc. - Brief participants on avoidance of contact with glass and sharp objects - Brief participants on the area that they can use and any off-limits areas and what to do in the event of getting lost – consider use of whistles - Staff to rope / cone off dangerous areas as needed - Count heads regularly at intervals to suit age group - Brief participants on no running in woods	2 x 2 = 4 Low	G1, G3, G5, P1, P3, P5, M2, M3, M7, M8, M9, M10, M11, E1, E2, E3, E4, E5

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Building dens & shelters Staff, volunteers, participants	2 x 3 = 6 Low	• Check site is suitable for den building – sharps, dog faeces, falling branches etc. • Brief participants on finding and transporting suitable branches – use wood on ground only, no cutting or breaking off live branches • Brief participants on appropriate styles of den and how to build safely and avoiding injury to self and others with sticks • Check finished shelter before use by group. Adapt if needed to make safe	2 x 2 = 4 Low	G3, G5, P1, P2, P5, M1, M2, M3, M4, M7, M8, M9, M10, M11, E1, E2, E4, E5
Rope swings Staff, volunteers, participants	3 x 4 = 12 Medium	• Only use rope swings set up specifically for the group • Check ropes for damage / wear and suitable thickness • Check appropriate knots are used to secure to tree and add a solid stick or knot as a seat at a height to avoid damage to feet but not more than 30cm gap between feet and floor • Ensure area around is clear of hazards to swinging participant at tree and ground level	2 x 4 = 8 Medium	G3, G5, P1, P3, P4, P5, M2, M3, M8, M9, M10, E1, E2, E3

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – FOREST SCHOOL ACTIVITIES
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Tools & Equipment				
Equipment checks Staff, volunteers, participants	3 x 4 = 12 Medium	- Instructors to check all equipment in use is serviceable for the activity. Participants should be encouraged to check their own equipment to instil a “personal safety ethos” - All faulty equipment is to be removed from use, identified with a tag and logged into the equipment folder - Team Building equipment, slacklines, hammocks or shelter structures should be checked by the staff in charge of the activity before use by the participants and any necessary adjustments made.	2 x 3 = 6 Low	G2, G4, M3, M9, M11, E1, E5
Use of tools Staff, volunteers, participants	3 x 4 = 12 Medium	- Tools such as knives, saws, axes, billhooks, drills can only be used following a full safety brief and instructions how to use, walk with, pass, place and use of glove(s) - Use of tools is to be fully supervised by a Forest Leader with support from other adults, in ratio to suit the age group and experience of the group - Safe area (blood bubble) to be formed around each participant two arm and tool lengths away from anyone else and participants instructed to stop using tools if the others come too close - Ensure tools are kept in one place and knives and sharp tools are securely stored - Ensure tools are fully cleaned and maintained before storing at POC - Ensure First Aid Kit and first aider are on work area site	2 x 4 = 8 Medium	G1, G3, G4, G5, P1, P2, P3, P4, P5, M1, M2, M3, M5, M8, M9, M10, M11, E1, E2, E4, E5

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – FOREST SCHOOL ACTIVITIES
GENERIC RISK / BENEFIT ASSESSMENT BY PHIL ATKINSON & MARK UNDERWOOD – MARCH 2022

Weather Conditions				
Lightning can cause severe injuries Staff, Volunteers, participants	1 x 5 = 5 Low	All land based activities cancelled or halted during severe weather conditions which include lightning. Return to building.	1 x 5 = 5 Low	G5, M2, M3, M9, M10, E3
Injury or ill health caused due to exposure to severe weather conditions Staff, volunteers, participants	1 x 4 = 4 Low	- Instructors are to ensure appropriate clothing is worn and that participants are able to change soon after becoming wet/cold. - Brief participants to wear long sleeved clothing to protect arms and legs. - Staff to erect suitable tarp cover to provide protection from inclement weather	1 x 4 = 4 Low	G1, G2, G3, G5, M2, M3, M9, M10, E1, E2, E5
Hot weather Hyperthermia/sunburn Staff, volunteers, participants	2 x 3 = 6 Low	- Participants advised to take precautions against over-heating / sun. Course users advised to avoid dehydration. - A source of cool, clean and potable water in sufficient quantities is provided - Staff to advise use of suitable sun protection - Staff to erect suitable tarp cover to provide protection from sunlight	2 x 2 = 4 Low	G1, G2, G3, G5, M2, M3, M9, M10, E1, E2, E5
Cold weather Hypothermia Staff, volunteers, participants	2 x 3 = 6 Low	- Participants are to wear clothing appropriate for the prevailing conditions. - Mobile phone or radio to be carried by the FSL - Main building is short distance away from the location - All participants should have a dry change of clothing and spare footwear.	2 x 2 = 4 Low	G1, G2, G3, G5, M2, M3, M9, M10, E1, E2, E5
Strong Winds Staff, volunteers, participants	2 x 5 = 10 Medium	Strong winds can be damaging to trees and dislodge dead wood from the canopy. Ensure activities are stopped and participants moved to place of safety in case of high winds	1 x 4 = 4 Medium	G1, G2, G3, G5, M2, M3, M9, M10, E1, E2, E5

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – FOREST SCHOOL ACTIVITIES
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Illness From Existing Medical Conditions				
Issues arising from pre-existing medical conditions Staff, volunteers, participants	1 x 4 = 4 Low	- Parent Permission Form requires details of any disability, medical, dietary or behavioural requirements and any medicines needed. Medical questions asked prior to activity - Ensure Forest Leader staff and volunteers are briefed on declared requirements - Trained first aiders on site at all times with First Aid Kit - Follow Emergency Action Plan if needed	1 x 4 = 4 Low	M7, M8, M9, M10, E2, E3, E5
Conserve areas of use				
Ecological Impact Staff, volunteers, participants, public	2 x 1 = 2 Low	- Brief participants on importance of protecting the area from damage caused by activities to woodland ground, field, shrub, canopy layers, nesting birds, footpath and habitats - Ensure fires are properly supervised and kept off the ground, properly extinguished and ashes disposed of – leave no trace - Consider ways to limit impact of compaction, pollution and denudation affecting the FS area – review POC WH Ecological Impact Assessment regularly and promote good stewardship to all staff, helpers and participants	2 x 1 = 2 Low	G2, G3, G4, G5, M3, M6, M8, M9, M10, E2
Buildings and Compound				
Vehicles Staff, volunteers, participants, public	1 x 5 = 5 Low	- Ensure all vehicles on site are driven slowly in the compound area and are aware of Centre Users especially when reversing. - Ensure vehicles are parked neatly and away from the activity areas with their engines off	1 x 5 = 5 Low	G1, G2, M2, M8, M9, M10, E1, E5

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Fire Staff, volunteers, participants	1 x 5 = 5 Low	• Ensure all participants are aware of fire drill, emergency exits and Emergency Assembly Point • Ensure all fire alarms, detectors and extinguishers are checked and in good working order	1 x 5 = 5 Low	G1, G2, M2, M8, M9, M10, E1, E5
Catering Staff, volunteers, participants	1 x 4 = 4 Low	• Ensure all participants are aware of the need to wash hands before eating or drinking • Staff to ensure all food preparation surfaces are kept clean and tidy and fridge / cupboards are clean and stocked with food and drink within its “use by or best before” date	1 x 4 = 4 Low	G1, G2, G4, G5, M3, M9, M10, E5
Public access Staff, volunteers, participants, public	1 x 1 = 1 Low	• Ensure buildings are locked when not occupied • Ensure valuables are kept in the locked building	1 x 1 = 1 Low	G1, G2, M9, E2, E5

NOTES:

Checked and renewed 15.04.21 PJA/MU/JD

Appendix 6, Provider risk assessments 2, Land based activities

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – GENERAL LAND BASED ACTIVITIES GENERIC RISK ASSESSMENT BY PHIL ATKINSON, CENTRE DEVELOPMENT DIRECTOR – REVIEWED MARCH 2022

Hazard / Risk	Priority	Action / Risk Control	By whom
Orienteering / Team Building			
Trips and slips	Low	- Brief all participants to watch out for mud, puddles, tree roots, uneven ground etc. - If you need to get help for an injured companion, mark on the map where the patient is and return to HQ.	Staff, Volunteers, participants.
Climbing / falls from height	Low	- Brief all participants that none of the orienteering markers are above eye level and there is no need to climb trees, fences or walls. - Brief all participants to be careful on team building equipment and avoid falling off / pushing etc.	Staff, Volunteers, participants.
Water / drowning	Low	Brief all participants on the dangers of falling in the reservoir and that no control points are closer than 10m to the water edge. Keep away from the reservoir!	Staff, Volunteers, participants.
Running / injury	Low	- Brief all participants to be careful when running through wooded areas to avoid collisions with branches and twigs, especially around the eyes and face. - Be aware of brambles, nettles and barbed wire fences and wear protective long sleeves and trousers. - Hold pencils carefully to avoid injury in the case of a slip or trip	Staff, Volunteers, participants.
Public access	Low	- Brief all youth participants on “stranger danger” - Brief all participants how to behave around dogs and dog walkers in area - Brief participants to be polite to members of the public if they need to communicate with them	Staff, Volunteers, participants.
Separation from group	Medium	- Instructors to count heads regularly - Participants to be briefed on finding their way back to POC. Travel downhill to yellow path, generally turn left and walk back to HQ. Do not cross roads or car parks (except access track)	Staff, Volunteers, participants.

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – GENERAL LAND BASED ACTIVITIES
GENERIC RISK ASSESSMENT BY PHIL ATKINSON, CENTRE DEVELOPMENT DIRECTOR – REVIEWED MARCH 2022

		In the event of lost participant(s), instructors to be sent out to search using the VHF radios to communicate with HQ and other searchers.	
Equipment / injuries	Medium	- Briefing provided on the dangers of planks, crates, poles, hooks, ropes - All users should demonstrate correct technique and safe handling of equipment. - Hold pencils carefully to avoid injury in the case of a slip or trip	Staff, volunteers, participants
Equipment			
Equipment checks	Low	- Instructors to check all equipment in use is serviceable for the activity. Participants should be encouraged to check their own equipment to instil a “personal safety ethos” - All faulty equipment is to be removed from use, identified with a tag and logged into the equipment book - Team Building structures should be checked by the staff in charge of the activity before use by the participants and any necessary adjustments made.	Staff, volunteers, participants
Weather Conditions			
Lightning can cause severe injuries	Low	All land based activities cancelled or halted during severe weather conditions which include lightning	Staff, Volunteers, participants.
Injury or ill health caused due to exposure to severe weather conditions	Low	Instructors are to ensure appropriate clothing is worn and that participants are able to change soon after becoming wet/cold.	Staff, volunteers, participants
Hot weather Hyperthermia/sunburn	Medium	- Participants advised to take precautions against over-heating / sun. Course users advised to avoid dehydration. - A source of cool, clean and potable water in sufficient quantities is provided - Staff to advise use of suitable sun protection	Staff, volunteers, participants
Cold weather Hypothermia	Medium	- Participants are to wear clothing appropriate for the prevailing conditions. - Mobile phones/radios are to be carried by all instructors - Main building is short distance away from the location	Staff, volunteers, participants

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – GENERAL LAND BASED ACTIVITIES
GENERIC RISK ASSESSMENT BY PHIL ATKINSON, CENTRE DEVELOPMENT DIRECTOR – REVIEWED MARCH 2022

		All participants should have a dry change of clothing and spare footwear.	
Illness From Existing Medical Conditions			
Users unable to take/access their emergency medication resulting in possible life threatening illness	Low	- Medical questions asked prior to activity - Users unable to take/access their emergency medication resulting in possible life threatening illness - Trained first aiders on site at all times	Staff, volunteers, participants
Buildings and Compound			
Vehicles	Low	- Ensure all vehicles on site are driven slowly in the compound area and are aware of Centre Users especially when reversing. - Ensure vehicles are parked neatly and away from the activity areas with their engines off.	Staff, volunteers, participants
Fire	Low	- Ensure all participants are aware of fire drill, emergency exits and Emergency Assembly Point. - Ensure all fire alarms, detectors and extinguishers are checked and in good working order	Staff, volunteers, participants
Catering	Low	- Ensure all participants are aware of the need to wash hands before eating or drinking - Staff to ensure all food preparation surfaces are kept clean and tidy and fridge / cupboards are clean and stocked with food and drink within its "eat by" date	Staff, volunteers, participants
Public access	Low	Ensure buildings and valuables are locked when not occupied	Staff, volunteers, participants

Risk Assessment to be updated with Dynamic Risk Assessment by Coach(s) to meet the current needs of the activity. Management to be advised of any deficiencies or amendments to be made to this Risk Assessment.
 See separate Risk / Benefit Assessment for Forest School activities.

Appendix 7, Provider risk assessments 3, Water based activities

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – GENERAL WATERSPORTS ON FLAT WATER ASSESSMENT BY PHIL ATKINSON, CENTRE DEVELOPMENT DIRECTOR – REVIEWED MARCH 2022

Hazard / Risk	Priority	Action / Risk Control	By whom
Water			
Drowning	Medium	- First Aid staff available at all times during opening hours - All participants are supervised (maximum ratio as SOP's) at all times whilst involved in water sports, i.e. on land, and whilst on the water. - Participants are briefed about the risks and, where appropriate, given de-limited areas (safe areas, no-go areas, etc.) - All participants, observers and support staff wear buoyancy aids at all times whilst beyond the slipway - All participants are fully briefed on "capsize drills"	Staff, Volunteers, reservoir users and others.
Bacterial contamination leading to irritation of the digestive tract	Low	- Briefing provided by the instructor on the importance of washing hands after the activity, before eating, drinking, etc. - Any cuts/grazes should be washed in clean water and covered where appropriate.	Staff, Volunteers, reservoir users.
Algae contamination leading to irritation of the skin and digestive tract and poisoning	Low	Participants are advised to wash soon after the activity and to shower if they have fallen into the water.	Staff, Volunteers, reservoir users.
Separation from group	Medium	- Instructors to count heads regularly - Participants to be briefed on effect of wind, avoidance of overhanging trees and bushes and keeping with their group	Staff, Volunteers, reservoir users.
Launching / retrieving boats	Medium	- Brief participants not to walk on the slipway below the waterline as the concrete is slippery - Coach to ensure that boats are properly emptied before being carried back to the sheds.	Staff, Volunteers, reservoir users.
Collisions			
Collision with rafts, sailing dinghies, windsurfers, kayaks, canoes or the bottom. Participants injured	Medium	- Group well briefed prior to launching raft on what to do if the craft capsizes - All crafts are accompanied by support boat (canoe/kayak or powerboat) and observed by an instructor (max ratio as SOP's).	Staff, Volunteers, reservoir users.

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – GENERAL WATERSPORTS ON FLAT WATER
ASSESSMENT BY PHIL ATKINSON, CENTRE DEVELOPMENT DIRECTOR – REVIEWED MARCH 2022

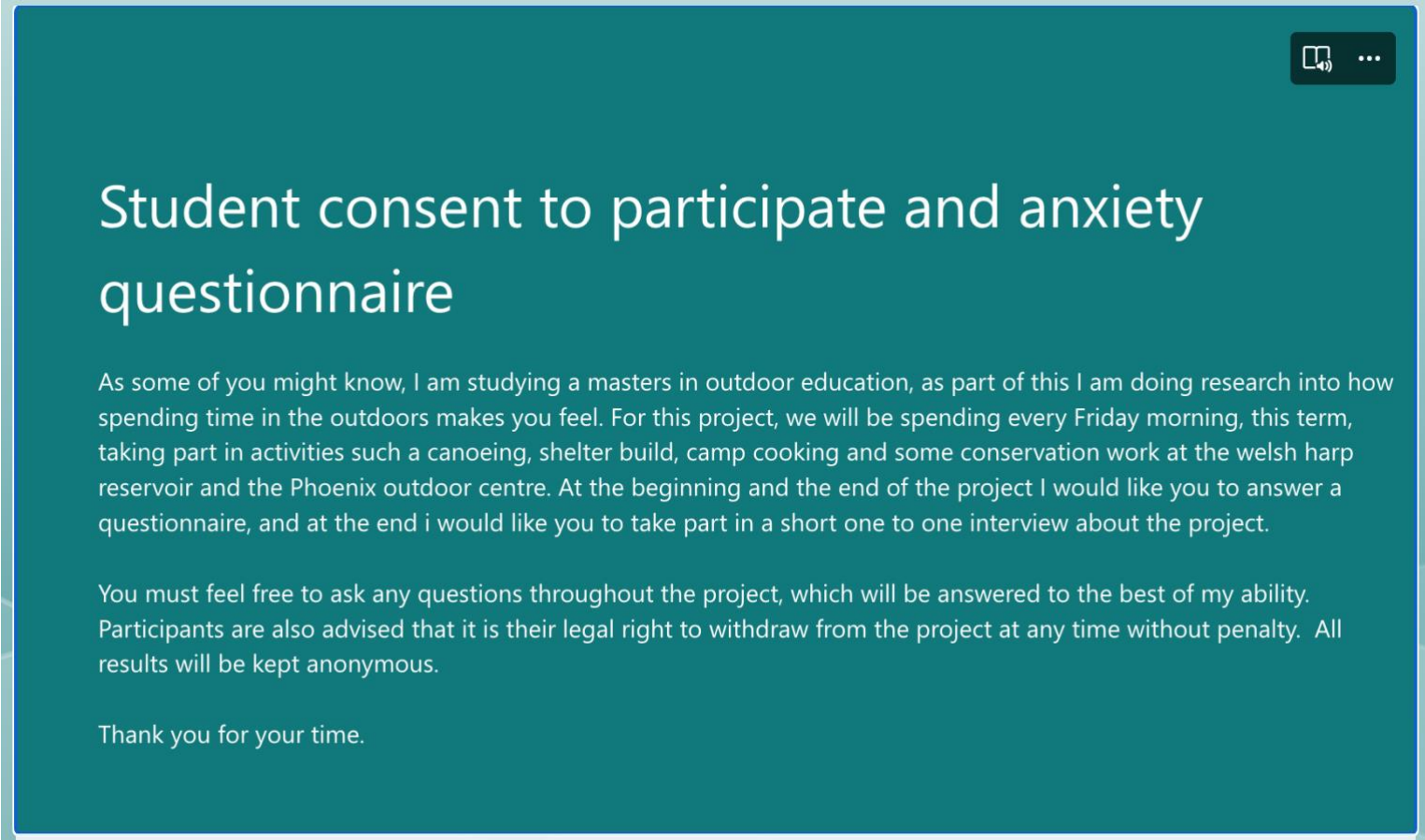
		- Instructors carry knife capable of cutting any ropes in the event of an emergency. - Instructors check the reservoir beforehand to ensure there are no obstructions. - Users instructed to work together to minimize collision impacts.	
Injuries caused by paddle use / booms / raft poles	Medium	- Briefing provided on the dangers of paddles, booms, raft poles - All users should demonstrate correct technique and safe handling of equipment.	Staff, Volunteers, reservoir users.
Equipment			
Equipment checks	Low	- Instructors to check all equipment in use is serviceable for the activity. Participants should be encouraged to check their own equipment to instil a “safety ethos” - All faulty equipment is to be removed from use, identified with a tag and logged into the equipment book - Improvised rafts should be checked by the staff in charge of the activity before launching on water and any necessary adjustments made.	Staff, Volunteers, reservoir users.
Weather Conditions			
Lightning can cause severe injuries	Low	All water activities cancelled or halted during severe weather conditions which include lightning	Staff, Volunteers, reservoir users.
Injury or ill health caused due to exposure to severe weather conditions	Low	Instructors are to ensure appropriate clothing is worn and that participants are able to change soon after becoming wet/cold.	Staff, Volunteers, reservoir users.
Hot weather Hyperthermia/sunburn	Medium	- Water users advised to take precautions against over-heating/sun. Course users advised to avoid dehydration. - A source of cool, clean and potable water in sufficient quantities is provided - Staff to advise use of suitable sun protection	Staff, Volunteers, reservoir users.
Cold weather Hypothermia	Medium	- Participants are to wear clothing or wetsuits appropriate for the prevailing conditions. - Mobile phones/radios are to be carried by all instructors - Main building is a short distance away from the location	Staff, Volunteers, reservoir users.

PHOENIX CANOE CLUB & OUTDOOR CENTRE – RISK ASSESSMENT FORM – GENERAL WATERSPORTS ON FLAT WATER
ASSESSMENT BY PHIL ATKINSON, CENTRE DEVELOPMENT DIRECTOR – REVIEWED MARCH 2022

		All participants should have a dry change of clothing and spare footwear.	
Illness From Existing Medical Conditions			
Users unable to take/access their emergency medication resulting in possible life threatening illness	Low	- Medical questions asked prior to activity - Users unable to take/access their emergency medication resulting in possible life threatening illness - Trained first aiders on site at all times	Staff, volunteers, participants
On land			
Vehicles	Low	- Ensure all vehicles on site are driven slowly in the compound area and are aware of Centre Users especially when reversing. - Ensure vehicles are parked neatly and away from the activity areas with their engines off.	Staff, Volunteers, reservoir users.
Public access	Low	- Brief all youth participants on “stranger danger” - Brief all participants on dogs and dog walkers in area - Ensure buildings and valuables are locked when not occupied	Staff, Volunteers, reservoir users.
Uneven ground / sharps	Low	- Brief all participants on uneven ground, high steps, nettles, barbed wire. - Maintain slipway and pontoons to avoid trip and slip hazards	Staff, Volunteers, reservoir users.
Fire	Low	- Ensure all participants are aware of fire drill, emergency exits and Emergency Assembly Point. - Ensure all fire alarms, detectors and extinguishers are checked and in good working order	Staff, volunteers, participants
Separation from group	Medium	- Instructors to count heads at regular intervals - Brief participants on keeping together and with instructor	Staff, Volunteers, reservoir users.
Catering	Low	- Ensure all participants are aware of the need to wash hands before eating or drinking - Staff to ensure all food preparation surfaces are kept clean and tidy and fridge / cupboards are clean and stocked with food and drink within its “eat by” date	Staff, volunteers, participants

Appendix 8, Student consent to participant digital form link and screen shoot

<https://forms.office.com/Pages/DesignPageV2.aspx?subpage=design&FormId=-REPTm4EBUWcuNshUjEeITk43Jt0v6VIjfiX17QPyo1U>



The screenshot shows a digital form titled "Student consent to participate and anxiety questionnaire". The form is set against a teal background with white text. In the top right corner, there are icons for a mobile device and a menu. The text of the form explains the researcher's study in outdoor education, the activities involved, and the purpose of the questionnaire. It also states that participants can ask questions, withdraw at any time, and that results will be anonymous. The form concludes with a thank you message.

Student consent to participate and anxiety questionnaire

As some of you might know, I am studying a masters in outdoor education, as part of this I am doing research into how spending time in the outdoors makes you feel. For this project, we will be spending every Friday morning, this term, taking part in activities such a canoeing, shelter build, camp cooking and some conservation work at the welsh harp reservoir and the Phoenix outdoor centre. At the beginning and the end of the project I would like you to answer a questionnaire, and at the end i would like you to take part in a short one to one interview about the project.

You must feel free to ask any questions throughout the project, which will be answered to the best of my ability. Participants are also advised that it is their legal right to withdraw from the project at any time without penalty. All results will be kept anonymous.

Thank you for your time.

[MFZOSzRMQk5UQU9FWEpaSkcxRzNWVU9TMMy4u](#)

Appendix 9, Student Example Interview Transcript

Student 2 (ST2)

Interview in person, 30th June 2023, transcribed from voice notes by Microsoft word.

Interviewer- Matt

Interviewee- ST2

Matt

OK. So LG. Yeah, thank you so much for helping me out on my project and doing that outdoor stuff. Are you happy to be recorded?

ST2

Yeah.

Matt

Cool. So First off. I'm Interested in what you thought of that outdoor curriculum.

ST2

It's very fun, so I like exploring.

Matt

Cool. Anything else?

ST2

So I'd like to. It's fun. It's outdoors.

Matt

You like being outdoors. Before this How much time would you say you spent outdoors in nature?

ST2

Zero, Yeah, I'll probably just go home and then just go my Xbox or my PC or so, actually only on Thursday. I do cadets. But other than that, no.

Matt

OK. And now would you want to go out more?

ST2

Yeah, I've been going out every. Day I've been going to beaches and trying to do the obstacle courses in the forests and all that.

Matt

OH, cool. So, it's really changed the way that you use your free time.

ST2

Yeah, because I don't want to be inside. I'd rather go out into the woods and climb a tree or something.

Matt

Brilliant. I love that. I'd. Rather, go out and climb a tree. I'm. I'm with you. I'm with you. Can you tell me what you enjoyed about the curriculum and why?

ST2

Everyone worked as a team. And then in school No one seems to really like talk to each other. But when we're out on the trip, like, everyone sorts of comes together and has fun. It's no, not really argument. It's just fun that everyone gets along.

Matt

so, a bit of teamwork. working with other people, getting to know them a bit better. Yeah. Yeah, cool.

Can you tell me what you didn't enjoy? And why,

I mean, you can, you can say you liked It all if you like.

ST2

I liked it all. I didn't think anything was bad.

Matt

Yeah, you liked it all.

ST2

Yeah, I probably did like the only bit was probably boring. Was the car journey.

Matt

Do you know what fine, that you? You know that that's a that can be a barrier for people using the outdoors is how they get to the outdoors. So that's a it's a valid point to say that the journey was boring. OK.

So have you done any of these things that we've done before on this course? So we did team building, we've done some canoeing, we did some woodland management, we did some shelter building. We've done fire lighting and we've done orienteering.

ST2

We've done all of them except from canoeing. And that was it, because I was seeing scouts. As well, yeah, I did mostly.

Matt

Did you do the fire lighting?

ST2

Yeah, in the Scouts. Yeah, and I do that in cadets as well.

Matt

Yeah. So it's just a canoeing, which was a new thing for you.

ST2

I did Water rafting and then that's a bit different, but not Cannoning . I don't canoeing yet.

Matt

Have you not done the canoeing yet? Ah, you missed it. There you go. OK,

I'm interested in how you feel about spending time outside in nature now, Compared to before.

ST2

I enjoy it more because it's more things out there to do than, I Don't realise that there's that there is so many different things You can actually do in the woods.

Matt

OK. And how does it make you feel when you're spending time? In the woods. Or with nature.

ST2

You can release your energy in a positive way by just running away. They're not running away.

Yeah, running around.

Matt

What do you mean running around?

ST2

Yeah, running around, like you can use your let's. Say if you. Have a lot of energy. You can just go out in nature and there is just loads of different things to do and there's lots of different things to hear and it's not loud. There's not. There's no racket. Basically, it's just nice. Like it's not horrible.

Matt

So on a scale of making, you feel anxious and agitated being 10 and relaxed and calm, being one where on the scale would you say that you used to feel about being outdoors to now. So let's start with. Before and then.

ST2

10 because I used to worry about getting dirty like the things that stick to me, but now I don't care about getting dirty cause it just washes off.

Matt

Cool. So now on that scale of 1 to 10, where would you be in spending time in nature?

ST2

One, that's good, but it just sounds.

Matt

One. no, no, it's good cause you're telling me that it makes you feel more calm and less anxious.

ST2

Yeah,

Matt

What do you think you have learned while you have been on the course?

ST2

Communications skills, Working with boys. I don't know. Yeah.

Matt

I tell you one of the things that I've watched you get better at was the fire lighting. Can you remember what happened the first day we did the fire lighting?

ST2

Yeah, I was petrified, because I don't like heat and I was so scared, but. Now I'm fine.

Matt

So do you think you might have learned a new skill doing that.

ST2

I conquered my fear about not all of it, but with fire. I think I have. Because I'm not. I can go near it now, like I won't be. I won't go stand there and run away or go back inside and watch my window. Yeah, that's funny and.

Matt

Yeah, it's it's good. Do you think that you would continue to do any of these activities that you've done? So would you do them outside of the time that we've been doing them?

ST2

Yeah, I wanted to try and join explorers as well, but I don't know how to, but. I wanna do more things.

Matt

So you wanna see if there's an organisation you can join that means you can do more of these activities?

ST2

Yeah

Matt

That's excellent. yeah, OK. I'm interested in how these activities made you feel generally. And activity specific. So you've already said that generally you feel a lot calmer and more relaxed

in nature and in the woods and things. But are there any of the activities that make you feel more anxious that you're better with now or that you feel more comfortable?

ST2

Be interested to go around the woods like, because obviously no one's actually I've. I've never been to that woods and just to feel safe to walk around there. It's just a big thing because normally I have to get to know. The area first before I. Actually decide to go off for myself or just explore it.

Speaker

OK.

Matt

So you've actually you felt safe in that area that we were Using?

ST2

Yeah.

Do you know why that might be? Can you think why that is?

ST2

I don't know because they always say that there's people in the woods or that homeless people in the woods or people going to kidnap you and take you into the somewhere on the matter that.

Matt

But if you if you realise that that's Just not true.

ST2

You don't know that, it could. It may be not in what's his name? Ali. Ali (the instructor) Whatever his name is. I don't think it happens in his woods, but. Maybe it's gonna have to run, I don't know.

Matt

And you've already you've already said that you feel safe in the space. That's great. Thank you very much, LG. Thank you for taking the time to speak to me and.

ST2

Ohh it's recording it, yeah.

Appendix 10, Teacher Example Interview Transcript

Faculty member (FM1)

Interview in person, 30th June 2023, transcribed from voice notes by Microsoft word.

Interviewer- Matt

Interviewee- FM1

Matt

Cool, KDB, Happy to be recorded.

FM1

Hello, Matt. Yes

Matt

KDB, you're the head of Edith Kay School. Correct. And I've been doing my outdoor project with your young people.

FM1

Yes, that's right.

Matt

And so first of all, what your thoughts on the project?

FM1

It's been really successful, genuinely. The impacts, it wasn't, it was unexpected. We hoped it would be as good as it was. I think it's better than we expected. If I'm really honest with you.

Matt

OK. Yeah, cool. What your thoughts on the types of activities and how they came together?

FM1

I think it was a really good balance because you were giving young people life skills, but you were allowing them to just be themselves. They didn't feel any compulsion to do anything other than what they could do. And actually that made it easier than for them to do better than they plan to do. It was brilliant for them to be in a team and you were able to kind of we've got an issue here. You know, with the slight gender divide between the girls and the boys, your projects brought them all together and got them to learn to work together and be. Working together, we had that stress of exam series. Every school has that, but our young people didn't even notice it because they're busy out with you on the project. So it's been Fantastic

Matt

Cool. What do you think the young people have gained from it?

FM1

Enjoyment. They've learned that they can have fun in the outdoors. Nobody's making them go. Umm, they've learned that there are new skills that are just fun skills. It's not imposed on them, and they've challenged themselves. You get a few kids in the on the canoe trip that wouldn't normally go on the canoes, and they did that and we had a few young people making camps and they wouldn't even make their beds, you know, so executive functioning. It's just the value. And a second and then I see them when they come back and they're tired, happy, tired, hungry. And there's just a general sense of accomplishment when they come through that door. And I've never really seen that before with some of our other trips. They're heightened, they're excited and they're happy, but in. This one they're they have ownership of it. So it's just it's really. Good. It's really.

Matt

Cool. Do you think it's helped with their anxiety levels?

FM1

I think it's given them another channel. If I'm really honest with you. Yes, in in general. It has helped. With their anxiety, Friday is kind of an. An accessible day because it gives them a chance to recover from the week, prepare for the weekend and our young people need an awful lot of preparation. As you know. Uhm. It's given them another access to. Do a way in which they can regulate self, regulate and help them out. So I do think it has helped a lot with the anxiety. It also helps staff. So I think the Friday has made it more access, more kind of available. It's allowed staff to talk more to the children in a way in which a school environment might not be so. Accessible, if that makes. Any sense? Yeah. So I genuinely think, yeah, but I think we'll see more of it. I think it's going to really, really embed itself, I think in terms. Of helping the Anxiety.

Matt

Cool. Have you noticed any changes to the atmosphere in the school since starting the project generally? And on a day-to-day basis.

FM1

Yeah, absolutely. Yeah, there's no, no question about it. I think the staff are really bonded. So I'll talk to the school community. I think staff are really bonded and they have a real sense of enjoyment because honestly, we all come to work because we love what we do. And I think that has just really enriched their. Environment their world. And they've also kind of emphasised with the young people that you're, you know, you're doing activities with. People that they can understand might be a little daunting or a bit challenging, but they're doing them too, so they're enjoying it. So it's kind of a really lovely way of bringing the community

together. So it absolutely changed the dynamic in the school. Uh, Fridays are a perfect. It is a perfect day to do it Friday. But what I'm seeing is that actually it really then lends itself to the lessons on the Friday afternoon. So some. Young people would normally come back and probably, you know, struggled to engage in normal lesson time. But actually we've. Never had a problem that. I think give one child who would always be an issue. You've actually brought more kids back to school on a Friday. Brilliant, you know, and I think the one young person really stands out for me. We had young one young person who wouldn't come to school at all. It took me 6 months, I think, to even get them to say hello to me from their room. When I went out to visit them to try and figure out a way of getting them in school. Maybe for six months is an exaggeration. Well, I can tell you something. They're here every Friday morning on the dot without fail. Actually, on time. It's the one where the. And now they're coming to school five days a week. No problem at all, because I think they've got. The balance right and that's. Through your project? Yeah.

Matt

Cool.

So do you think the young people have responded to the project? I think we've established that that they have

FM1

Yeah, you've answered that,

Matt

any negative outcomes from the project?

FM1

yeah. UM I think If there was.

One negative I I think from a school's point of view, I need to just make absolutely sure. That it complements and we've had no issue with it this year, but make sure that it complements what we're doing alongside it so that there aren't any questions about kind of subjects losing time on the time double. So that's kind of for me to make sure that that's OK we had no issues this year as you know genuinely now because most of the young people have finished their GCSE. Course work and everything else. But if we do it over the year, that's something I have. To be really conscious of and aware of. UM, we had. Something similar when we started out with the gym, if you remember, but that's actually now so well embedded that everything functions around that. Uh, I don't think anything else. Yeah. And that's not anything to do with the project.

We have two really extreme young people who are very, extremely anxious and they're just, they're well-being in the state of being at the moment is so. Bad and it's, you know, they're there's nothing you can do about that, but hopefully you might be able to engage them in the coming year and. Get them more involved in it, yeah.

Matt

I think that's. One of the that's a difficult one, isn't. It cause hmm. Their anxiety level can also be triggered by the amount of people that are there and things like that. So they're the sort. Of ones where you're kind of almost thinking about putting together something bespoke, but.

FM1

I think so, yeah. And maybe 1 to one for that. but two, two of those young people have are currently going through. So cycles is. Yeah. So you know, beyond. Yeah. And then one of them his his young behaviour is so he's so heightened and his fear his light. The right thing and makes it so difficult for him. Having said that, I don't think he would have stayed with us at Sports Day and that's where I think that some of the outcomes really shining. It's in other events. So you did sports day on Monday and it was a totally different atmosphere, very relaxed, very, very little anxiety shown. Apart from that one child and even he stayed. So you know, there's lots of. Step little tiny steps, but they're really important. Steps so so, so positive.

Matt

OK. So you you've mentioned a couple of unexpected outcomes. Is there any else anymore that you can think of before? Yeah, not covered because they I mean one of the ones that I thought about was the fact that the. The young people bonding better with the staff. I thought that was a that was an unexpected one. I didn't really foresee.

FM1

Yeah, I did because I think sometimes it's really I did and I didn't, if that makes sense. I didn't because I didn't realise how much the staff would respond so well to. Course also the projects and they really, really did. One well and they bought into it as much as the children did. UM, I think it's really nice for the people to see the maths teacher making a camp with you. I think it's fantastic when the Spanish teacher is trying to light fires and subsidy and see. I think it's really important for the young people to see the staff is fully rented individuals same as themselves. So for me it was a really positive outcome Like and it also bends it. It it really bonded some of the young people properly with the staff who really care about them, want them to do well, and it helped them bond with each other actually. And and be kind to each other and be gentle with each other and be, you know, persuasive and whatnot. But then we have one young person who doesn't like maths at all, as you know, but actually in in the courses

that you've been doing. Project specifically that you've been doing. It's kind of lends itself back into the classroom. So you know, they're much more kind to each other or kind to the maths teacher and much more aware that. She's trying to help them, which is good, yeah. That's fantastic. Thanks.

Matt

Is there anything else you'd like to add regarding the project and?

FM1

I just think it's gonna get better and better, I think. What you're doing is. Really is meticulously. Systematic and nobody sees that. But I see what you're doing. So you're quietly generally, you know, engendering that sense of well-being and getting the balance in the school right between academics and. You know, living in the now and depreciating kind of the natural support we have around us in terms of our mental well-being is phenomenal. Onwards and upwards, you know we're. Looking at one day residential Duke of Edinburgh, those.

Matt

Wait, wait. Yeah, we're, we're, we're we're definitely moving.

FM1

Loads of things.

Matt

In the right.

FM1

Yeah, we are, yeah.

Matt

Trajectory in terms of those things.

FM1

Yeah, yeah. And it's and it's also kind of it's contagious. So you have other members of staff now doing the garden. You have the travel for London helping us out with the star project and looking at. the Mayor of London, came in with some grant for us for some social action. So everything isn't just kind of working in its own little island. Now we're all kind of intertwined in some ways. Informed. Yeah, it's really it really is. And and all of us that have got the child right in the middle going. Yeah. Wow. Which is great. It's really, really helpful. So so helpful.

Matt

It's like a big Venn diagram. Thank you very. Much I mean.

FM1

Every bit of what I've just.

Appendix 11, Application for ethical Approval

APPLICATION FOR ETHICAL APPROVAL

In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.

The University follows the OECD Frascati manual definition of **research activity**: “creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications”. As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the “principal researcher”.

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

Please read the notes for guidance before completing ALL sections of the form.

This form must be completed and approved prior to undertaking any research activity.

Please see Checklist for details of process for different categories of application.

SECTION A: About You (Principal Researcher)

Full Name:	Matthew James Clarke				
Tick all boxes which apply:					
Member of staff:	☐	Student:	☒	Honorary research fellow:	☐

Faculty/School/Centre:	School of Sport, Health and Outdoor Education
Campus:	Carmarthen
E-mail address:	1500202@student.uwtsd.ac.uk
Contact Telephone Number:	07958586943

For students:

Student Number:	1500202	Undergraduate	☐
Programme of Study:	Outdoor Education (MA)	Taught Postgraduate	☒
Director of Studies/Supervisor:	DR Andy Williams and DR Kate Piper	Research	☐

SECTION B: Approval for Research Activity

Has the research activity received approval in principle? (please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual)		YES	☐	NO	☒
					<i>Date</i>
If Yes, please indicate source of approval (and date where known):	Research Degrees Committee		☐		
	Faculty Research Committee		☐		
	Other (write in)		☐		

Approval in principle **must** be obtained from the relevant source prior to seeking ethical approval.

SECTION C: External Ethical Guidance Materials

Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines.	
UWTSD Research Ethics & Integrity Code of Practice	☒
UWTSD Research Data Management Policy	☒
BERA ethical guidelines for educational research	☒

SECTION D: External Collaborative Research Activity

Does the research activity involve collaborators outside of the University?	YES	☒	NO	☐
If Yes, please provide the name of the external organisation and name and contact details for the main contact person:				
Institution	Edith Kay special educational needs school			
Contact person name	Karen Dwyer-Burchill			
Contact person e-mail address	headteacher@edithkayschool.com			

Where research activity is carried out in collaboration with an external organisation

Does this organisation have its own ethics approval system?	YES	☐	NO	☒
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If Yes, please attach a copy of any final approval (or interim approval) from the organisation
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SECTION E: Details of Research Activity

Indicative title:	What is the relationship between regular slow adventure/ forest school and trait anxiety levels and wellbeing in young people with SENDs?		
Proposed start date:	17 th April 2023	Proposed end date:	17 th July 2023
Purpose of research activity (including aims and objectives) Outline the purpose, aims and objectives of the research activity, including key research questions. Show briefly how existing research has informed the proposed activity and explain what the research activity will add and how it addresses an area of importance. (Maximum 300 words)			
Purpose: To see if there is a relationship between regular engagement in forest school and slow adventure activities and levels of anxiety in young people with special educational needs. Aim: To see whether regular engagement in forest school/ slow adventure can have a positive effect on anxiety levels in SEND students. Objective: To give the students an additional method to manage their anxiety levels positively. (this box should expand as you type)			
Proposed methods Provide a brief summary of all the methods that may be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. (Maximum 600 words)			
At the beginning and the end of the intervention period students will be asked to complete the Anxiety Scale for Children with Autism Spectrum Disorder (ASC-ASD)(appendix one), this is to measure their anxiety levels to see if there is a difference. Teacher will also be ask to fill in an Anxiety Scale for Children with Autism Spectrum Disorder parent version(ASC-ASD- P) (appendix two), this is to measure the teachers perception of their key child/ children's anxiety levels and was used by Carey, Sheehan, Healy, Knott and Kinsella (2022) for both parents and teachers. These will be done through a Microsoft forms questionnaire. Using the Data collected form the schools ABC system per and during the intervention will help to see if the students are better able to regulate their emotions leading to better behaviour.			

Students will take part in timetabled session at a local outdoor centre, which many of the student have been to before. The sessions will consist of elements of both forest school activities and slow adventure. Which will hopefully help to reduce anxiety levels and increase mental well-being.

At the end of the intervention, I will interview some of the students. Students will be asked question to find out if spending time in this way helped with their levels of perceived anxiety and whether they would continue to spend time in nature to help with it.

(this box should expand as you type)

Location of research activity

Identify all locations where research activity will take place.

All activities will take place with Students from Edith kay school at the Phoenix outdoor centre on the Welsh heart reservoir in London.

(this box should expand as you type)

Research activity outside of the UK

If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural sensitivities or vulnerabilities of participants.

N/A

(this box should expand as you type)

SECTION F: Scope of Research Activity

Will the research activity include:	YES	NO
Use of a questionnaire or similar research instrument?	☒	☐
Use of interviews?	☒	☐
Use of diaries?	☐	☒
Participant observation with their knowledge?	☐	☒
Participant observation without their knowledge?	☐	☒

Use of video or audio recording?	☒	☐
Access to personal or confidential information without the participants' specific consent?	☐	☒
Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?	☐	☒
Performance of any acts which may cause embarrassment or affect self-esteem?	☐	☒
Investigation of participants involved in illegal activities?	☐	☒
Use of procedures that involve deception?	☐	☒
Administration of any substance, agent or placebo?	☐	☒
Working with live vertebrate animals?	☐	☒
Other primary data collection methods, please explain in this box	☐	☒

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

SECTION G: Intended Participants

Who are the intended participants:	YES	NO
Students or staff at the University?	☐	☒
Adults (over the age of 18 and competent to give consent)?	☒	☐
Vulnerable adults?	☒	☐
Children under 18?	☒	☐
Prisoners?	☐	☒
Young offenders?	☐	☒
Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?	☐	☒
People engaged in illegal activities?	☐	☒
Others (please identify):	☐	☒

Participant numbers and source

Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited?

I will be aiming for a minimum of 4-8 students. These students will come from the special needs school I work in. while the intervention will be time tabled, student will be asked to volunteer in terms of data collection.

(this box should expand as you type)

Information for participants:	YES	NO	N/A
Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	☒	☐	☐
Will you tell participants that their participation is voluntary?	☒	☐	☐
Will you obtain written consent for participation?	☒	☐	☐
Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	☒	☐	☐
If the research is observational, will you ask participants for their consent to being observed?	☐	☐	☒
Will you tell participants that they may withdraw from the research at any time and for any reason?	☒	☐	☐
With questionnaires, will you give participants the option of omitting questions they do not want to answer?	☒	☐	☐
Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	☒	☐	☐
Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	☒	☐	☐
If NO to any of above questions, please give an explanation			
(this box should expand as you type)			

Information for participants:	YES	NO	N/A
Will participants be paid?	☐	☒	☐
Is specialist electrical or other equipment to be used with participants?	☐	☒	☐
Are there any financial or other interests to the investigator or University arising from this study?	☐	☒	☐
Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims?	☐	☒	☐
If YES to any question, please provide full details			

(this box should expand as you type)

SECTION H: Anticipated Risks

Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them.

If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.

Full risk assessment completed and appended?

Yes ☐

No ☒

Risks to participants

For example: emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information

School has risk assessments in terms of travel to venue which will be in the school minibus. Phoenix outdoor centre has risk assessment for all the different activities they provide.

(this box should expand as you type)

If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities

Due to the nature of the school an information that is disclosed to staff members will be dealt with as usual. This includes following the schools safeguarding procedures and writing up an ABC form that helps the safe guarding leads track any issues an student may be facing.

(this box should expand as you type)

Risks to investigator

For example: personal safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest
Student have been to the outdoor centre for end of year trips over the last few years and so know the venue, the staff at the centre also understand the needs of our students. While there is always risk when taking part in outdoor activities the centre have risk assessments for all their activates and school staff will also be available to help in-terms of emotional needs as many of the students have strong relationships with individual staff members. (this box should expand as you type)
University/institutional risks For example: adverse publicity, financial loss, data protection
With outdoor activities there is always an element of risk. These risk are reduced through a combination of pre-activity risk assessments and on-going risk assessments. (this box should expand as you type)
Adverse outcomes List measures put in place to limit any adverse effects or outcomes of research activity where appropriate. Include any emergency protocols.
Emergencies of a physical nature, that require the emergency services, will follow the centre Procedures and protocols. Outdoor adventures activities are part of the national curriculum, these types of actives usually follow a challenge by choice philosophy, this will help to limit any adverse effects the research could have on the students mentally. (this box should expand as you type)

Disclosure and Barring Service			
If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.	YES	NO	N/A
Has a DBS certificate been obtained?	☒	☐	☐

SECTION I: Feedback, Consent and Confidentiality

Feedback What feedback will be provided to participants, how will this be done and when?
This will be done at the end of the interviews. Thanking them for taking part and helping me, asking them if they have any questions, and that they can ask me any questions they might have at any time.

(this box should expand as you type)
Informed consent Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded. Student will be given a choice on whether to participate or not, during a briefing a Microsoft forms based questionnaire will be used to document their agreement to participate. (this box should expand as you type)
Confidentiality / Anonymity Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case. Pseudonyms will be used during the writing up phase. (this box should expand as you type)

SECTION J: Data Protection and Storage

In completing this section refer to the University's Research Data Management Policy and the extensive resources on the University's Research Data Management web pages (<http://uwtsd.ac.uk/library/research-data-management/>).

	YES	NO
Does the research activity involve personal data (as defined by the Data Protection Act)? <i>“personal data” means data which relate to a living individual who can be identified—</i> <i>(a) from those data, or</i> <i>(b) from those data and other information which is in the possession of, or is likely to come into the possession of, the data controller, and includes any expression of opinion about the individual and any indication of the intentions of the data controller or any other person in respect of the individual.</i>	☒	☐
If YES, provide a description of the data and explain why this data needs to be collected: All data collection will be anonymous with the use of pseudonyms (this box should expand as you type)		
Does it involve sensitive personal data (as defined by the Data Protection Act)? <i>“Sensitive personal data” means personal data consisting of information as to</i> <i>(a) the racial or ethnic origin of the data subject,</i>	☐	☒

(b) his political opinions, (c) his religious beliefs or other beliefs of a similar nature, (d) whether he is a member of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992), (e) his physical or mental health or condition, (f) his sexual life, (g) the commission or alleged commission by him of any offence, or (h) any proceedings for any offence committed or alleged to have been committed by him, the disposal of such proceedings or the sentence of any court in such proceedings.		
If YES, provide a description of the data and explain why this data needs to be collected:		
(this box should expand as you type)		

Will the research activity involve storing personal data on one of the following:	YES	NO
Manual files (i.e. in paper form)?	☒	☐
University computers?	☐	☒
Private company computers?	☐	☒
Home or other personal computers?	☒	☐
Laptop computers/ CDs/ Portable disk-drives/ memory sticks?	☒	☐
“Cloud” storage or websites?	☒	☐
Other – specify:	☐	☒
For all stored data, explain the measures in place to ensure data confidentiality, including details of password protection, encryption and anonymisation:		
All digital data will be kept on a laptop that is password protected, and in files which are password protected. Any data on Microsoft forms is linked to my university account which is also password protected. All data will be deleted once the final grade has been given. Anonymisation will be used where needed with the use of pseudonyms when needed.		
Will the research activity involve any of the following activities:	YES	NO
Electronic transfer of data in any form?	☒	☐
Sharing of data with others at the University?	☐	☒
Sharing of data with other organisations?	☐	☒
Export of data outside the European Union or importing of data from outside the UK?	☐	☒

Use of personal addresses, postcodes, faxes, emails or telephone numbers?	☐	☒
Publication of data that might allow identification of individuals?	☐	☒
Use of data management system?	☐	☒
Data archiving?	☐	☒
If YES to any question, please provide full details, explaining how this will be conducted in accordance with the Data Protection Act (and/or any international equivalent):		
Use of Microsoft forms for data collection and transfer. Interview recordings transcribed and emailed back to myself.		

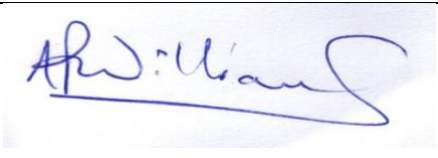
List all who will have access to the data generated by the research activity:
Matthew Clarke (Me), Possibly my project supervisor
List who will have control of, and act as custodian(s) for, data generated by the research activity:
Matthew Clarke (me)
Give details of data storage arrangements, including where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.
All digital data will be kept on a laptop that is password protected and in files which are password protected. Any data on Microsoft forms is linked to my university account which is also password protected. All data will be deleted once the final grade has been given.

SECTION K: Declaration

The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants. In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice	
Signature of applicant: M J Clarke	Date: 25 October 2022

For students:

Director of Studies/Supervisor:	A Williams
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Signature:	
Date:	17 February 2023

For staff:

Head of School/Assistant Dean:	
Signature:	
Date:	

Checklist: Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

☒	I have read the guidance notes supplied before completing the form.
☒	I have completed ALL RELEVANT sections of the form in full.
☒	I confirm that the research activity has received approval in principle
☒	I have attached a copy of final/interim approval from external organisation (where appropriate) Appendix 2
☐	I have attached a full risk assessment (and have NOT completed Section H of this form) (where appropriate)
☒	I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.
☒	I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Head of School.

RESEARCH STUDENTS AND STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk , with the title 'Ethical Approval' followed by your name.

You will be informed of the outcome of your claim by email; therefore **it is important that you check your University and personal email accounts regularly.**

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.