RESEARCH REPORT

Community by Nature: An examination of an outdoor learning intervention for young people at risk of exclusion

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Dr Benjamin Gibson, Dr Emma Ashworth & Dr Lisa Newson
School of Psychology, Liverpool John Moores University

in Collaboration with
Community by Nature, Kate Jameson & Jo Sayers

LIVERPOOL JOHN MOORES UNIVERSITY

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CONTACTS

For further information regarding the design and delivery of this intervention, please contact Kate Jameson, Community by Nature. email: kate@communitybynature.org.uk

Community By
Nature 40-42
Herford Road Bootle
Merseyside
L20 7DH

Tel 0151 933 2363

For further information on this research evaluation please contact :
Liverpool John Moores University. Dr Lisa Newson email: l.m.newson@ljmu.ac.uk

School of Psychology,
Faculty of Health
Liverpool John Moores University
Byrom Street
Liverpool
L3 3AF

Abstract

The present report outlines a mixed-methods examination of Community by Nature's (CbN) outdoor learning intervention. The first phase of the examination was conducted with N=8 young people (aged 11-16) from a secondary school in Merseyside, who had previously been identified as at-risk of future exclusion. These young people participated in the intervention two days a week over a five-month period and completed two surveys (one at baseline and one following completion of the intervention) that measured wellbeing and attitudes towards various pro- and anti-social behaviours. Inferential statistics (t-tests) indicated that young people's goals and aspirations became significantly more positive after participating in the intervention, and their perceived stress levels reduced. Wellbeing and self-regulation scores also increased after receipt of the intervention, although this change did not reach statistical significance. A sub-sample of the young people (N=3), alongside intervention staff (N=2), school staff (N=1) and previous intervention recipients (N=3), later took part in semi-structured interviews to identify longer-term perceptions of impact as part of the second phase of the examination. Reflexive thematic analysis was used to analyse interview data, and three themes (with associated sub-themes) were identified: 1) the outdoor intervention as a preferable learning environment (opportunities for novel experiences, building confidence, developing trust and mutual respect), 2) the outdoor intervention as a transformative experience (social development, emotional development, changing lives), and 3) the future of outdoor learning interventions (recommendations for CbN, making outdoor learning even better). These themes indicated benefits to wellbeing, pro-social behaviour, and the young people's prospects over time as they talked of the future, the advantages of being outside, learning practical skills, working as part of a team, and making new friends. Overall, we found the intervention showed promise in supporting the various social, emotional, and behavioural needs of young people, particularly those at-risk. We have enclosed our recommendations for the future of the intervention within.

Introduction

UK-based outdoor learning interventions (including, but not limited to, forest schools, etc.) have been drawing on Scandinavian philosophies of child-initiated learning and learning through play (Fjørtoft, 2001; Harris, 2017; Joyce, 2012; Knight, 2009; O'Brien, 2009) since 1994 (Blackwell, 2015). Such interventions are structured so that children and young people attend numerous outdoor sessions over a period of time; often weekly for at least a half term, though sometimes throughout the school year. Sessions are led by a practitioner who is trained in aspects of child development, woodcraft skills, and local environmental knowledge. Practitioners seek to raise the students' confidence and self-esteem through small, repeatable tasks while simultaneously nurturing their personal, social, and emotional growth through development of team-working skills (Harris, 2018). Generally, outdoor learning interventions take place in a local woodland setting, though in some instances they may occur in an area of school grounds separate from the normal playground (Harris, 2018).

Research on various outdoor learning interventions has shown that they can contribute to the development of social and citizenship skills (Knight, 2009; Swarbrick et al., 2004); positively impact mental health and physical activity (Lovell & Roe, 2009; Maynard, 2007); and enable free play and child-led learning (Waite et al., 2011). Research has also examined what is learned and how this relates to the National Curriculum, given the development of skills (e.g. tool use) that encourages kinaesthetic and sensory learning approaches (Harris, 2017). Such initiatives may therefore promote "restorative" outcomes, in ways similar to that of psychological interventions.

For example, various outdoor interventions have shown to foster emotional resilience and self-regulation in disadvantaged primary school children, benefiting their wellbeing and academic development (McCree et al., 2018). Furthermore, they have shown to support the development of academic, social, and practical skills in young children (6-12) with severe, profound, and multiple learning difficulties or Autism Spectrum Conditions (ASCs; Bradley & Male, 2017). Though most research is conducted on initiatives operating exclusively as a space for children of primary school age (Davis & Waite, 2005; Knight, 2009; Maynard, 2007; O'Brien, 2009; O'Brien & Murray, 2007; Swarbrick et al., 2004), it is possible that other outdoor, nature-based interventions may similarly support the needs of older children with similar difficulties, such as adolescents at-risk of exclusion from traditional academic settings. There is correlational evidence that short-term (1-6 month) and long-term (1-3 year) exposure to green spaces may reduce aggressive behaviours in these adolescent age groups (Younan et al., 2016) while research has also shown that adolescents who express "poor" behaviour may benefit more from nature-based interventions than children of the same age who express "good" behaviour (Roe & Aspinall, 2011).

Whether outdoor nature-based interventions support other factors associated with risk of exclusion including goals and aspirations, delinquency, and conduct problems remains uncertain but warrants further investigation, given this groups' unique needs for social, emotional, and learning developmental support (Armstrong, 2021).

Context and Intervention

The aim of this project was to examine the outdoor nature-based learning intervention run by Community by Nature. Formerly known as Sefton Play Council, Community by Nature (CbN) is a Merseyside based charity whose aim is to improve the lives of children and adults in the local area by encouraging participation in community learning, play, and forest engagement. Liverpool is in the top 20% of the most deprived districts/unitary authorities in England and 26.3% (21,515) of children currently live in low income families. This has implications for prospects, risk of delinquency, and health (for, example, life expectancy for both men and women is lower here compared to the England average; PHE, 2020). Using the outdoors natural environment, CbN deliver a unique, alternative learning programme for young people (aged 11-16) who struggle in a formal classroom environment. In contrast to other outdoor learning initiatives, this programme is specifically aimed at young people who are close to exclusion or who are otherwise disengaged in school.

For 2-4 days each week (between 10am-2pm) young people take part in a range of practical, challenging activities including woodland survival skills, woodland management, and outdoor woodcraft (such as outdoor-cooking; building fires; coppicing; tree-pruning; use of tools like knives, bows, and saws; shelter-building; building rope-structures, etc.), in order to support a variety of learning and development outcomes (Harris, 2017; 2018). For example, involvement in the preparation, outdoor cooking, and sharing of a meal at lunchtime is encouraged to promote young people's teamwork skills and social development. The project is delivered with small groups allowing for close supervision, continual support and nurturing of young people. A consistent team of skilled and experienced staff lead this project, building respect and trust throughout the programme. Young people engage in this project for a period of 6-12 months, though some engage for longer.

Liverpool John Moores University (LJMU) were consulted by CbN, seeking research support that would examine the effectiveness of their intervention in improving young people's social and emotional wellbeing, and reducing their risk of future involvement in anti-social behaviour and criminal activity. Though previous research has indicated that more work needs to be conducted into the effectiveness of nature-based interventions as a solution to anti-social behaviour (Roe & Aspinall, 2011), anecdotal evidence collected by the CbN team suggests the intervention is effective at improving outcomes for young people. Therefore, CbN were granted capacity building funding by the Youth Endowment Fund to improve their impact evaluation, establish the potential impact of their programme, and identify the mechanisms underpinning any beneficial effects. Thus, LJMU were contracted as the independent research team to examine their intervention, assisting CbN in unpicking the pathways that lead to change.

Here at LJMU, we have done so through the use of a mixed-methods approach. Our research question was as follows:

In what ways does a natural outdoor-based alternative education intervention impact on a) the social and emotional wellbeing, b) mental health, and c) the aspirations of young people at risk of exclusion /criminal activity?

We specifically hypothesised that CbN's intervention would be associated with improvements to each of these three factors (i.e. social and emotional wellbeing; mental health; and aspirations). In addition to answering this question, we also aimed to:

1. Establish the critical components and mechanisms underpinning any intervention impacts, and to identify any areas of concern;
2. Develop a TiDieR framework and logic model that developers can use to improve the outdoor learning intervention in the future.

This report focuses on Aim 1, exploring the impact of the intervention and the mechanisms underpinning this. Aim 2 will be addressed at length in the scientific version of this report, subject to publication at a later date.

Methods

Overview

To effectively examine the CbN intervention, we adopted a mixed-methods approach, combining quantitative and qualitative research methods (Boeije et al., 2015; Tiplady & Menter, 2021). As part of the quantitative phase, we asked young people due to participate in the CbN intervention to complete a survey (consisting of a range of validated psychometric measures) before and after their participation. This allowed us to identify key potential outcomes of the intervention as agreed with the CbN team. As part of the qualitative phase, we interviewed a select number of the current intervention cohort, as well as previous intervention participants and key members of staff involved in the running and development of the nature-based intervention, and analysed this data using Reflective Thematic Analysis (Braun & Clarke, 2019). This mixed methods approach allowed us to enrich our understanding of the findings and identify both immediate and long-term outcomes of the intervention.

Quantitative Methods

Design

We utilised a one-way repeated measures design to assess the CbN intervention's impact on students' well-being, goals and aspirations for the future, perceived stress and coping, conduct problems, pro-social behaviours, self-regulation, and beliefs about delinquency. Participants took part in a survey administered at two time points: pre- and post-intervention (February and July 2021). The survey was delivered to young people via their school with help from a school contact on site. Ethical permission for this phase of the study was approved by the LJMU UREC (ref: 21/PSY/001).

Participants

Participants were expected to be approximately 8-10 secondary school children (aged 11-16) who had been identified by the participating school as being at-risk of exclusion. Members of this sample were either on a reduced timetable, internal exclusion, or were in the process of being transferred to another institution. They were all students who had been encouraged to stay in school by the council, and CbN's outdoor intervention represented a way for students to remain integrated in some capacity. The school had originally identified a larger cohort of potential participants for the intervention. However, due to COVID-19 restrictions at the time, schools were only teaching remotely after February 2021 half-term and so they only selected the young people who were still physically attending school, due to having parents listed as key workers. These selected young people provided assent and parents consented to participation in this research. Young people were reminded of the nature of the survey and were informed that completion was voluntary.

Materials

The two surveys (pre- and post-intervention) were conducted online via a survey platform (Qualtrics) in school, consistent with the way these measures have been administered in previous studies (e.g., Hayes et al., 2019).

The survey consisted of several measures, based on the outcomes identified in consultation with the CbN team. All measures chosen had been psychometrically validated for the present age group (e.g., Hayes et al., 2019a, 2019b; Ashworth et al., 2021):

Short Warwick–Edinburgh Mental Well-being Scale (SWEMWBS) (Fat et al., 2017): A 7-item validated measure of positive wellbeing in young people aged 11-16. Participants are given some statements about thoughts and feelings, which they then endorse using a five-point Likert scale to indicate how often they have experienced these over the previous 2 weeks. For example, statements include "I've been feeling optimistic about the future" and "I've been dealing with problems well". Higher scores are indicative of greater wellbeing.

Student resilience survey: goals and aspirations subscale (SRS) (Lereya et al., 2013): A 2-item measure of goals and aspirations (subscale from the student resilience survey) was utilised. This is a validated measure of goals and aspirations designed for use with young people as young as nine years old. The two questions ask participants to indicate if they had "goals and plans for the future" and whether they think they "will be successful when [they] grow up" using a five-point Likert scale. Higher scores are indicative of more positive goals and aspirations.

Perceived stress scale, 10 item version (PSS-10) (Cohen et al., 1994): A 10-item validated measure of stress and coping, validated for use with young people aged 11-16. Participants indicate how often they have felt a certain way in the past month using a five-point Likert scale. For example, questions include "in the last month, how often have you been upset about something that happened unexpectedly?" and "in the last month, how often have you felt nervous and 'stressed'?". Higher scores are indicative of greater levels of perceived stress.

Strengths and Difficulties Questionnaire: conduct problems and pro-social behaviour subscales (SDQ;) (Goodman, 2001): 2 subscales of the SDQ measuring conduct problems and pro-social behaviour, designed for use with 11-17 year olds (10 items). Participants are asked to indicate whether they feel a set of statements were not true, somewhat true or certainly true of them. For example, statements include "I usually do as I am told" and "I am helpful if someone is hurt, upset or feeling ill". Higher scores are indicative of fewer conduct problems and greater pro-social behaviour.

Trait emotional intelligence questionnaire – Adolescent short form: self-regulation subscale (TEIQUE-ASF) (Petrides, 2009): A 6-item subscale of the TEIQUE-ASF designed to measure self-regulation for use with adolescents aged 11-17. Using a 7-point Likert scale, participants indicate the extent to which they agree with a number of statements including "I find it hard

to control my feelings" and "sometimes I get involved in things later I wish I could get out of". Higher scores are indicative of greater self-regulation.

Delinquent Behaviours – Rochester Youth Development Study measure (Dahlberg et al., 2005): An 8-item measure of beliefs about delinquency validated for use with young people in Grades 7 and 8. This tool measures the extent to which participants have favourable beliefs/attitudes towards delinquent behaviours, as opposed to young people's actual engagement in crime. Participants are asked to indicate how wrong they feel certain behaviours are using a 5-point Likert scale. For example, behaviours include "steal something worth £100?" and "hit someone with the idea of hurting them?". Higher scores are indicative of beliefs and attitudes more supportive of delinquent behaviours.

Procedure

Our key contact at the school identified young people as eligible to participate in the intervention, and contacted their parents/carers to inform them of the research study. The key contact also provided the parents/carers with the study information sheet and an opt-in consent form. Subject to providing consent, parents/carers were fully briefed on the study. Parents/carers were also provided with the researchers' contact details so they could ask for more information directly. Alternatively, parents/carers could consent to sharing their details with the researchers if they preferred the researchers to contact them. Following parental/carer consent, the young people were also approached directly by the key contact at the school, seeking assent and providing the study information documents.

The study commenced the week beginning 22nd February 2021, just prior to the CbN intervention induction session. The research assistant for this project was present when surveys were administered, to introduce themselves and the project and to detail the survey's purpose and what it entailed. This process provided an additional opportunity for the young people to ask any questions about the project. Following students' assent, young people completed their surveys under the supervision of the school's key contact. The school key contact then provided the participants with access to computers and links to the online survey (hosted on Qualtrics). The school key contact remained in the room while the young people completed the survey and was available to answer any of their questions; however, the student's answers remained anonymous and responses were not available to the key contact or any other participant. The same procedure was followed as part of the follow-up session during the week beginning 12th July, 2021 when the surveys were administered again as part of the post-intervention data collection time point (Time 2).

Data Analysis

Descriptive and inferential statistics were conducted on the data. Given the small size of the sample, t-tests were conducted to establish if there were any significant differences in young people's outcomes pre- and post-intervention. T-tests are a type of inferential statistical test

designed to compare means between two groups of people, allowing you to determine if there is a statistically significant difference between two groups, while ensuring that any differences between the groups' means are not down to chance.

Qualitative Methods

Design

A series of one-to-one semi-structured interviews were utilised to gain insight into the ways in which the CbN intervention influenced young people's outcomes, and to help to explain quantitative findings. Ethical permission for this phase of the study was similarly approved by the LJMU REC (ref: 21/PSY/009).

Participants

Interviews were conducted with several young people (i.e., current students) who participated in the quantitative phase of this study (n = 3); key stakeholders including school teachers (n = 1), CbN intervention developers (n = 1), and delivery staff (n = 1); as well as young adults aged 16-19 (n = 3) who had completed the CbN intervention in years prior (i.e., previous students). The young adults aged 16-19 represented a slightly different cohort to the young people who took part during the duration of the quantitative phase as they were 'alternative education students' that had been excluded from previous institutions, including Pupil Referral Units (PRUs). In contrast to the current cohort, the young adults were referred to CbN directly by the local council.

Working with this group of diverse individuals allowed for a level of triangulation, as the three different groups provided very different perspectives and reflections on the CbN intervention. In the results section below, current students are identified as CS1, 2 and 3; various staff members are identified as 'Teacher', 'Developer', and 'Deliverer'; and the previous students are identified as PS1, 2, and 3.

Materials

In consultation with the CbN team, semi-structured interview schedules were developed which consisted of several questions aiming to explore how and why participants felt the intervention had an impact. The interview schedules followed a semi-structured format to ensure that certain topics were covered whilst providing the flexibility that would allow participants to lead the direction of the interview. Questions were open-ended, and used prompts and probes where necessary to elicit more detailed responses. Questions covered topics such as experiences of participating; perceived impacts, barriers, and facilitators; likes and dislikes; and perceived strengths and weaknesses of the intervention. A full copy of the interview schedules can be found in the appendix.

Safety procedures recommended by Lockwood et al. (2018) and Demkowicz et al. (2020) were adopted to protect young people during this phase of the study, including fully-informed consent, thorough debriefing with signposting, and beginning and ending the interview with positive questions to reduce risk of harm.

Procedure

The school contact once again sent out the information sheet outlining the details of this interview study, and opt-in consent form to the parents of all young people participating in the CbN intervention. Prior to interview, young people were also asked to complete an opt-in assent form. Opt-in consent was obtained from the parents/carers and young people participating in interviews. Interviews were conducted with young people online (e.g., over Microsoft Teams) in a quiet, private room with the school contact while the young people were in school. The key shareholders and the previous recipients of the intervention (who were aged 16+) were sent the information sheet and opt-in consent form directly. They were also interviewed online, and they met the researcher at a time convenient for them.

Interviews began with a verbal overview of the participant's rights including safeguarding and confidentiality (as well as the limits of this). Researchers followed full safeguarding and distress protocols throughout in order to deal with any potential issues that may have arose throughout the interview. Interviews lasted on average between 20 and 45 minutes. Following the interview, the participant was given the opportunity to ask questions, and young people in particular were provided with a 'sources of support' document, signposting them to local support services.

Data Analysis

Qualitative data was analysed using Reflexive Thematic Analysis (TA; Braun & Clarke; 2019) which involved six phases of analysis. Phases were sequential, and each built on the previous one. However, analysis was also recursive, and so there was often movement back and forth across phases in order to better understand the data. The phases were: (1) familiarisation with the data; (2) generation of codes (i.e. labels) that identify important features of the data that may be relevant to the research question; (3) generation of initial themes through examination of codes and collated data to identify broader patterns of meaning (candidate themes); (4) reviewing themes by checking candidate themes against the dataset to determine whether they tell a convincing story of the data while providing an answer to the research question; (5) defining and naming themes so as to determine their 'story'; and (6) writing up - contextualising the analysis in relation to existing literature.

This analysis sought to identify common themes and patterns within and across the dataset. We took an inductive, semantic, and critical realist approach to the data, meaning that codes and themes were: (1) directed by the content of the data; (2) reflected the explicit content of the data, and; (3) focused on reporting an assumed reality evident in the data. This meant

that codes and themes were not directed by existing concepts or ideas, not reflective of concepts and *assumptions* underpinning the data, nor focused on examining how certain realities may be *created* by the data. The interviews were conducted by the research assistant who became most familiar with the data, given that they transcribed the recordings into verbatim text transcripts and commenced the initial coding process. The research team then supported further analysis, reviewing and naming of themes, as well as the writing up of the results. The research team had research expertise across intervention design, development, and evaluations, as well as specific interests in child and adolescent mental health and wellbeing. The research team were also not part of, or involved in any way with, the CbN intervention or the school involved in this study. As part of stakeholder engagement and validation of the analysis, the final themes were shared with the CbN team (including stakeholders that were interviewed as part of this study), who reflected on the findings and their study expectations; this helped to inform the final write-up (though it did not change the focus of the analysis itself).

Quantitative Results

Descriptive Statistics

8 participants took part in this phase of the study. An examination of the means in Table 1 below provides some insight into participants' baseline levels as well as changes over time.

Scores for wellbeing, self-regulation, and goals and aspirations increased from pre- to post-intervention, suggesting that after completing the intervention, young people reported greater levels of wellbeing, better self-regulation, and higher levels of goals and aspirations.

While stress scores were very high prior to CbN intervention (given an average score of 31 out of a possible score of 40 pre-intervention), these dropped post-intervention, indicating young people may have felt less stressed after receiving the intervention.

Self-reported conduct problems were higher than average at baseline, and remained higher than average after the intervention, indicating that participants engaged in behaviours indicative of conduct disorders. Interestingly, students *perceived* themselves to be extremely pro-social at both time points, and there looked to be very little change before and after the intervention.

Scores on the beliefs about delinquency measure were high (30 out of an average of 32) prior to the intervention, indicating participants had beliefs that favoured delinquent behaviour. However, scores on this measure fell by 10 points following the intervention, indicating a reduction in anti-social attitudes. However, the standard deviations (SD) were high (see table 1 below) which might suggest outliers in the data (i.e., suggesting that one or two students' attitudes may have drastically improved, but everyone else's stayed roughly the same).

Inferential statistics are therefore necessary to determine whether this difference (amongst the others) were statistically significant or simply down to chance.

The Shapiro-Wilk test of normality was consulted to determine normal distribution of each of the DV scores given the small sample size. All scores were normally distributed (p > .05), except for delinquency totals at Time 1 (p = .001). T-tests were conducted across all variables, though a Wilcoxon Signed-Rank test (a non-parametric alternative) was performed on delinquency measures to check the accuracy of the results.

Inferential Statistics

Table 1. Means and standard deviation of outcome measure scores pre- and post-intervention.

Outcome	Pre-Intervention Means (SD)	Post-Intervention Means (SD)
Wellbeing	23.17 (4.96)	26.00 (3.90)
Perceived Stress *	31.17 (7.63)	25.67 (8.45)
Conduct problems	8.50 (2.10)	8.00 (1.79)
Prosocial behaviours	12.83 (1.60)	11.83 (1.83)
Self-regulation	20.75 (4.65)	24.00 (5.35)
Goals and apsirations*	5.00 (1.41)	6.17 (1.72)
Attitudes towards/beliefs about delinquency	30.33 (1.03)	20.83 (10.82)

* indicates significance < .05

T-tests showed that perceived stress totals were significantly different across time points (t(5) = 2.73, p = .041). Perceived stress significantly decreased from pre- (M = 31.17, SD = 7.63) to post-intervention (M = 25.67; SD = 8.45), suggesting that following the CbN intervention, participants reported statistically significantly lower levels of stress.

Similarly, goals and aspirations scores statistically significantly increased from pre- (M = 5.00; SD = 1.41) to post-intervention (M = 6.17; SD = 1.72), indicating that after attending the CbN intervention, students were better able to imagine a more positive future for themselves (t(5) = -3.80; p = .013).

Despite some changes in means, the intervention otherwise did not have a statistically significant effect on the other outcomes.

Qualitative Findings

Qualitative analysis of the interview data resulted in three main themes and eight sub-themes. Through this, we were able to gain deeper insights into what the intervention

achieves, how it does so, and what organisers and partners can do in the future. Main themes and respective sub-themes were as follows:

(1) The outdoor intervention as a preferable learning environment;
    a. Opportunities for novel experiences
    b. Building confidence
    c. Developing trust and mutual respect
(2) The outdoor intervention as a transformative experience;
    a. Social development
    b. Emotional development
    c. Changing lives
(3) The future of outdoor interventions
    a. Recommending CbN's outdoor learning intervention
    b. Making outdoor learning interventions even better

1. The outdoor intervention as a preferable learning environment

1.1 Opportunities for novel experiences

As part of the CbN intervention, students engaged in novel activities and experiences they described as "incredible" (CS1) and "brilliant" (PS1). Students appreciated that the intervention was "hands on" (PS1) as it meant they could develop real life skills. Students were able to take pride in the various activities; one young person described the care and attention the put into constructing a mallet whilst a returning student enjoyed reaping the rewards of a more long-term project:

> "I used to like coppicing a lot because we used to take some stuff from like… from up on the field and that and then come back next year and you'd see how the… like how it's grown and that" – PS2

Perhaps consequently, students were uniquely excited about their engagement with the intervention:

> "I'd want to get in… that was the only like… environment, like a school environment, sort of, that I'd get up and be like 'I wanna go in' 'cause like… I was excited to go in and see what we was doing that day 'cause it was all just different stuff and er… it was brilliant" – PS3

Most students liked that "it was constantly just something new" (PS1) and though students' "paucity of experience" (Deliverer) meant they had to "learn some basics at first" (PS1), they quickly acclimatised to the forest and to working with their hands.

1.2 Building confidence

In exposing students to new experiences, new environments, and new people, staff were able to build self-confidence and self-esteem:

> "Things I didn't think I'd ever be able to do… that I ended up doing and was brilliant at. Definitely boosts your confidence amazingly. It does." – PS1

Just being out in the forest and learning new (practical) skills outside of the academic environment was enough to begin building confidence:

> "[Student 1] just goes about his business, he'll go off and he'll… he's almost like the Bear Grylls of the… he really took to it. He was… he was incredible, really, to be honest". – Teacher

For others, the sum experience of the intervention may have inspired personal revelations about one's sense of worth:

> "I had my friends and I'd just stick with my friends but then… when I was going there and meeting new people it was like… okay well are them people really the type of people I want to be friends with? Like, there's more people who I could go and meet, do you know what I mean?" – PS3

To truly build one's confidence though, students had to be supported as individuals. Fortunately, the intervention was thought to be the perfect environment to give students "breathing space" (deliverer) to experiment and do their own thing:

> "When I needed time-out, they would let me go and do my own thing because my… [Deliverer] said I was very good with ropes. So I would just like to go off and do my own thing if I needed to." – CS1

Perhaps for the first time, this meant students were given the time to learn that "failure after failure is the road to success" (Deliverer), thus encouraging learned perseverance, creative problem solving skills, adaptive new behaviours. For staff, this individual approach was deemed necessary for student's learning and development; the intervention had to "serve [the students] first" (Deliverer).

1.3 Developing mutual trust & respect

Students enrolled in CbN's intervention are often disengaged in school or are otherwise close to exclusion. For many individuals, the classroom setting is seen as limiting and is the cause of a downward cycle of frustration and tension. By contrast, the outdoors intervention may have given these same students the resources necessary to promote prosocial behaviours and engagement with others:

> "It's opened my eyes a bit more, do you know? It's just a better environment to be around, do you know what I'm saying? Instead of just sitting in classrooms and that, you know? The usual… the usual setting? It's much different. Much nicer! Much more calm and relaxing and it gives you the space in your head to just be free, you know? You don't get that in schools, man. I never got that in school, so…" – PS2

A lot of students involved in the intervention require support in more formal environments. However, accounts suggested they were unlikely to be receiving appropriate support in

schools or at home and may have been feeling isolated, left behind or negatively judged, which has consequences for their relationships with others, including those in authority:

> "I think they had access to support, but it wasn't support they wanted. So, young people, if they are... there's a huge trust er… issue, if you like, they will only trust a certain… it takes a long time to build up trust. They're not easily going to talk to a counsellor. They're not easily going to talk to someone from Addaction. They're not going to talk to teachers." – Developer

Having staff that students could trust showed to be an important aspect of the intervention. By developing positive relationships with staff, students learned to trust others, which they quickly realised has its upsides:

> "[Deliverer]'s my teacher but now… my mum and… my mum and that class [deliverer] as family, you know what I'm saying? That's how close we are, man. That's how it's brought it because [deliverer]'s been good to me, you know what I'm saying? No one else… no one else has been good to me like him, you know what I'm saying?" – PS2

A lot of the activities include using (and building) tools that are dangerous. In the words of the Developer, the intervention "works when you are involving young people in the high-risk activities, that… that's what works, you know. They want to work with fire, they want to work with knives…" (Developer) and by placing this trust in the students, students come to appreciate that trust can be mutual, and they learn that *they* can be trusting too:

> "Oh yeah, definitely, once obviously they could trust me, because obviously we handle knives and axes and stuff like that. So once… obviously, they learn to trust you." – PS1

The benefits of trust then extend to the community the students find themselves in:

> "The Rangers [at the public park where the intervention is accommodated], after initial scepticism, have supported what we do. They've supported it to their management who wanted to ban us from using fires. And also they've seen how what we do is change the culture of the wood. And it's gone from a place where local lads would bring their bull breed dogs to train them. And, you know, smoke really potent weed, and just generally sort of occupy the places there. It's moved from that to families making little, you know, lean-to shelters and dog walkers, erm… many of whom we now know socially in Britain, pre COVID times, we made them a brew in our little camp when they would wander through" – Deliverer

2. The outdoor school intervention as a transformative experience

2.1 Social development

Being in the forest with others encouraged strong bonds to form between students which made activities more fun, easier to perform, and more meaningful to engage in. Importantly, it appears that these friendships have the potential to last:

> "We all still speak now, me and the boys... we're still in touch now. And we still go on days out now and we… we're talking about trees! Even after all these years, you know?" – PS1

In understanding what has fashioned these bonds, PS2 remarked "it's a different kind of close when you're going like camping with them and… you know, just doing like outdoor stuff, man. It's good. It brings you together", implying that the environment, the activities, and proximity to others helped develop friendships. The supporting role of staff was also important in encouraging social efforts.

Indeed, teamwork was shown to be central to the intervention (though "a good session will allow for both group work and individual work" – Deliverer). Teamwork was not just constrained to activities though, as it was also put to use at the central camp around the fire. Teacher described camp as "communal" and as a place where students learnt to take "ownership" of their shared space. The deliverer similarly stated that the camp brought about social "cohesion" in part because it was a "hub, it is a core, it's where all the disagreements are thrashed out, all the plans are hatched" which lead to feelings of "'intimacy'… around the fire at times." The fact that class sizes were small may also have helped support a feeling of cohesion, closeness, and even a sense of being heard:

> "Because there's only a small group of you, because really in classrooms there's like big groups, there's like twenty-odd people… so then it gives the people that go in Forest School to like, stand up and have their opinion and have their say. And like, have their way to do stuff" – CS3

In the anecdote below, we can see how a sense of "family" (deliverer) - and a sense of responsibility promoted by the camp - encouraged the growth of one student in particular:

> "It was interesting looking at them that you'd have someone who's in year nine, who was quite a challenging boy, who would often pick on other boys in… in some ways in a classroom situation, but when he was out in the woods, he developed really good relationships with… primarily some of the younger ones, which… which says something about where he was in… his in his growth I think, in many ways." – Teacher

2.2 Emotional development

A lot of students enrolled in the outdoor intervention "come along as angry young people who have had enough, who are rebelling against any type of authority" (Developer). Fortunately, there was evidence that their outdoor intervention experience "made us look at life differently" (PS1). In particular, there was a tempering effect of the forest environment which helped improve concentration and reduce anxiety and stress, even for those with existing issues:

> "It was like the second you stepped into the forest, like… whatever was going on at home or whatever worries you had… would just disappear." – PS1

> "I've got ADHD. And er… it's like… I… if you sat me in the forest with a lesson, that was fun, in the forest, I would concentrate… When I'm in the forest, [deliverer] wants me to stop… I will listen, I will stop. Without my [medication]. Easily. It's just really been amazing." – CS1

The forest environment allowed students to learn to "appreciate… the outdoors" and "appreciate what makes them feel good" (Teacher), to develop self-regulation skills, and develop new ways of approaching challenges:

> "It taught me loads of different ways to cope with things… I used to be a very angry person when I was younger and… I dunno, like it's taught me that you don't have to be like that" – PS3

This is important given that many may not have been given the space to fail or otherwise express themselves in healthy ways prior to the intervention:

> "That when they first arrive, if you know, they perhaps can't handle a tool or tie a knot, they'll throw it down like 'ah f***ing hell, I can't do that' and because there's just no, there's no conditioned perseverance. So I think they, I think they definitely overcome that". – Deliverer

2.3 Changing lives

Supported by the intervention, student's development provided both immediate and long-term benefits. For example, Teacher reported immediate changes in attendance and behaviour in the classroom. Though the Teacher noted that "we're still gonna have issues. I mean, it's not a quick fix…", the Deliverer reiterates that the intervention is a "breathing space" that staff can take advantage of to help students "reintegrate back in their host institution". Current students felt that the intervention immediately "made a difference" (CS2) while returning students described the lasting effects that the experience has had on their lives:

> "I wouldn't be where I am now, without that forestry. I'd still be getting into trouble now, probably. Yeah, it changed my life massively" – PS1

In fact, the social and emotional development that students go through during their time with the intervention may even lay a foundation for further development over time. Students learn to see a future for themselves as well as alternative ways of living:

> "But there's actually more about that… rebuilding their resilience, I'd say in a nutshell. It's about the social and emotional development for the young people who are hugely involved in, you know, are influenced by people who are going to, they're going to end up in prison or dead." – Developer

Lessons learnt during the student's time there also mean that the outdoor intervention can equally support a "pathway into employment or training" (Deliverer):

> "What they learn in terms of processing in the woods, specifically in terms of the problem solving in terms of the construction of things that we do, they are

transferable problem solving skills, which will serve them well in… in any profession." – Deliverer

"[PS3] is working now for [local] Park. He's outdoors, he's like doing all the outdoor maintenance, he's got himself a good job. And he… his interest stemmed from… from the project, you know." – Developer

3. The future of outdoor interventions

3.1 Recommending CbN's outdoor learning intervention

The intervention was consistently recommended by participants. Students "wouldn't change a thing. I wouldn't change a thing" (PS1) while staff would "recommend it to everyone on the planet" (Teacher). However, there was a sense that certain groups would benefit *more*, especially those at-risk or who were otherwise isolated. Putting such students together may even promote greater social cohesion:

> "Interestingly, the young people who haven't engaged are maybe from a different background so maybe they've got some care and support in their background. It works for young people who are really lacking that… who are lacking that guidance and that understanding." – Developer

There were not just benefits for students though; staff could also benefit from being involved in the intervention. Staff received similar benefits from being out in the forest environment ("it was really beneficial to me, in the open air and the woods" – Teacher). Staff also get to see students grow and enjoy themselves which is good for "self-esteem, for your confidence in your job role" (Developer). However, it is important to remember that the "children can be challenging, which can also, you know… it's not stress free" (Developer).

3.2 Making outdoor learning interventions even better

Staff and students alike believe that the outdoor learning intervention requires further investment – of time, resources, and money – and further collaboration with other schools, researchers, and even past students. However, the continuous search for funding in particular can be time consuming and can interfere with the running of the intervention. Different funders, for example, impose different desires, and previous organisations have asked for impossible things, such as for the intervention's efficaciousness to be evidenced in ways that may run counter to the school's objectives:

> "Erm… I'm constantly scrambling for funding. That's really, really hard as well. And that means that it's very, very difficult to have any strategic planning for this project, because it… it takes on the form of its current funder. And that's, yeah, that, you know, can feel wasteful." – Deliverer

Staff are happy for the school to be evaluated but stress that outputs must have its own "intrinsic value" (Deliverer). Having a "unified body of information, precedents, partners, and links that we could, you know, that we could dip in and out… that everyone could" could standardise funders requests while sharing resources could encourage innovate ways of learning. This network could also provide idea and inspiration for CbN, as well as potential collaborations:

> "There is a school in the West Highlands… and their entire curriculum is integrated. So there's no delineation between the subject areas that they will… their D&T is evidenced by building a traditional kind of boat that's still made there, which goes back to Norse emigration. And then - so that's their D&T sorted - then they'll sail it to neighbouring islands and do wildlife surveys. That's their biology. And then navigation is the geography." – Deliverer

Funding is also needed to involve students for longer and to support them as they transition into adulthood and employment:

> "What we really need is post-16 continuity to continue that and… we need to smooth that cliff edge down. Because one of the problems that the students have had when they left us, they've left our care, and the intensity of our project at 16 could have been avoided if we could have monitored them in some way." – Deliverer

One way to continue involvement would be via a mentoring programme, a strategy posited by staff as well as by previous and current students (including Teacher and CS1). Mentoring would give current students someone to look up to, previous students a way to take on some responsibility, and give all young people involved more of a voice.

Discussion

The aim of this report was to examine the CbN outdoor intervention. The findings of this mixed-methods study demonstrate that the intervention was considered a viable and acceptable intervention by current students, previous students, and various CbN stakeholders. By utilising a mixed-methods design, we were able to gain insights into how the intervention impacted on the 1) social and emotional wellbeing, 2) mental health, and 3) aspirations of young people at risk of exclusion and/or criminal activity. Quantitative data indicated that young people's goals and aspirations became significantly more positive after participating in the intervention, and their perceived stress levels significantly reduced. Wellbeing and self-regulation scores also increased after receipt of the intervention, although this change did not reach statistical significance. The qualitative data identified three themes (with associated sub-themes) which explored these findings in more detail over time: 1) the outdoor intervention as a preferable learning environment (1.1. opportunities for novel experiences, 1.2. building confidence, 1.3. developing trust and mutual respect), 2) the outdoor intervention as a transformative experience (2.1. social development, 2.2. emotional development, 2.3. changing lives), and 3) the future of outdoor learning interventions (3.1. recommendations for CbN, 3.2. making outdoor learning even better).

Of particular note is that the survey results demonstrated that the outdoor intervention was associated with a significant reduction in perceived stress and an increase in the goals and aspirations of young people. This was supported by the themes developed, which showed that social inclusion, teamwork, and the forest environment was perceived to positively impact stress levels and temperament, as well as attitudes towards oneself and one's future. Previous research has shown the benefits of outdoor interventions for reducing stress and well-being in young people (including those with learning and sensory disorders and those with conduct behavioural issues; Bradley & Male, 2017; Roe & Aspinall, 2011). Similarly, considerable research has shown the numerous benefits of the forest environment (Harris, 2018; Kondo et al., 2018; Poulson, 2016) as well as the importance of social inclusion and teamworking activities for children at risk of exclusion (McGuire & Meadan, 2020). Given the high stress levels evidenced in the at-risk students who took part in this study, it is an important finding that the outdoor intervention was able to support them in this way. Interestingly, stress benefits were also felt by staff members involved in the programme which, though not the point of the intervention, may indirectly help students' learning. A flourishing teacher, after all, will be more engaging and supportive (Owen, 2016).

Similarly important was the impact that the outdoor intervention had on student's goals and aspirations. This is not something that has been evidenced in previous research - perhaps because it is a less salient outcome for other children - making this a unique finding of this study (and possibly for this intervention as a whole). Findings from the qualitative analysis suggest it is likely that a combination of novel experiences, time away from the classroom, the development of new relationships, and being given the space to learn and fail on their own terms (i.e., conditioned perseverance) may have supported this (O'Brien & Murray, 2007). Indeed, the CbN intervention appeared to have actively encouraged promotion of student's self-confidence and self-esteem through these very approaches and activities. Activities in particular were beneficial but so was camp; a space where students had to co-operate which fostered friendships, bonds, a sense of responsibility towards others, and allowed for the airing of grievances that staff believed had therapeutic effects comparative to counselling.

Crucially for the success of the CbN intervention experience, particularly for this group of students, was the quality of the staff involved. Qualitative accounts suggest staff encouraged teamwork, demonstrated the importance of mutual trust, and supported the social and emotion development of the students. Indirectly, this may have supported resilience, as students (past and present) were able to develop trusting relationships with staff in ways that they would not normally with other adults and members of authority (such as schoolteachers). As young people at risk of exclusion, a number of them may not have experienced this before, and there was evidence this supported students to became more trusting, socially responsible, and relaxed. The Developer noted that having the 'right' staff was crucial, particularly when supporting students with "challenging" behaviours out in the woods who are working with dangerous tools and fire. The trust shown by staff towards students with fire-making and tool use appeared to be reciprocal, with young people in turn

showing trust towards the staff. Thus, risk-averse or "safe" approaches with these young people would be unlikely to work, and employing risk-averse staff, therefore, could run the risk of excluding students further (Savery et al., 2016).

Importantly, there was also qualitative evidence that various intervention effects on outcomes such as stress and aspirations may become long-term, as well as a suggestion that the intervention may lead to slow, positive changes to pro-social behaviours and self-regulation over time. Previous research has found an effect of outdoor interventions on behavioural issues in young people before (Roe & Aspinall, 2011; Younan et al., 2016) and, though this effect was not initially identified in the quantitative phase of this study, qualitative evidence from returning students combined with testimonies from stakeholders suggest that such changes are unlikely to happen straight away. Indeed, pro-social behaviours may only develop once an emotional and social foundation is in place (Greenberg et al., 2017), and students have learnt that trust and supporting others has benefits. It is possible this might make students happier, thus supporting their wellbeing. Returning students, for example, discussed how an adoption of a more pro-social approach led to changes not just to their happiness but to their overall circumstances and wellbeing. Furthermore, evidence from the returning students would also suggest that retaining students over the years may help support these long-term effects even more.

Indeed, one way to encourage students and to support their development further (including an uptake of more pro-social behaviours) may be to instigate a mentoring scheme, something proposed by current students. This is discussed more in the 'recommendations' section below, but research supports removing what the Deliverer referred to as a "cliff edge" between institutions, and supporting young people at-risk when transitioning between safe spaces and employment. The data showed that efforts were already being made by staff to support students' learning and development, but mentoring would offer even further opportunities. Additional ways to support students and staff as posited by participants include more secure funding (as searching for funding takes time, and certain funders' wishes do not always align with CbN's values) as well as promoting networking of various outdoor interventions to ensure sharing of resources and best practice.

Recommendations

- Keep the focus of the intervention on students at risk of exclusion, especially those who may not have anyone at home to talk to.
- For students who are struggling in a classroom or similar academic setting, this type of experiential learning offers an important alternative environment where students can learn practical and abstract skills (such as problem solving) that may support employment and further training (Coates & Pimlott-Wilson, 2018).
- Ensure that the right staff continue to remain involved. The intervention works in part because of the ability to provide trained staff who can build trust and support the emotional needs of at-risk young people.

- Developing and implementing a mentoring programme will help to involve students for longer and support their transition into adulthood via pathways to employment or further education. Mentorship will also help to give students more say in the sessions and will provide long-term support to further enhance young people's social and emotional development (by providing them with responsibility, secure relationships, and mutual trust and respect). Mentoring has previously shown to be an evidenced-based approach for fostering positive youth development (DuBois et al., 2011), while having a mentor of a similar age that the young person can relate to seems likely to also reduce adolescent delinquency (Kelley & Lee, 2018).
- There is a need for further examination of long-term outcomes with a larger sample. This will allow us to answer more specific questions relating to the intervention's theory of change. Furthermore, while not significant in the current study, there were some changes to wellbeing and self-regulation scores which may become significant over time, or which may have been limited by the small sample size in the present study. Indeed, positive long-term effects on wellbeing were highlighted in the qualitative interviews. Thus, an examination of outcomes for a larger group of young people at multiple time points would provide a greater understanding of the potential social, emotional, and behavioural benefits of the intervention. Future research may also wish to examine longer term outcomes of the project on criminal activity in particular, given the high level of risks that the young people are at, and that the project demonstrates an improvement to attitudes, aspirations, and behaviours known to protect against criminal activity.

Limitations and Strengths

This examination took part during the peak of the COVID-19 pandemic, which not only negatively affected the priorities of the young people taking part but also negatively affected the duration of the intervention itself. Furthermore, this was in part a "feasibility" study, which means that we had a small sample of survey and interview participants. However, as part of our examination, we have successfully developed a foundation for future research to build on while providing a platform that will give funders and organisers insights necessary to further develop CbN's outdoor learning intervention. In fact, this mixed-method approach allowed for a showcase of varied perspectives and data points. Through this approach, our examination has provided unique insights into how the intervention, combined with staff efforts, leads to the reduction of stress, an increase in students' aspirations and wellbeing, and the adoption of pro-social behaviours and attitudes in young people at risk of exclusion over time.

Conclusions

Overall, CbN's outdoor learning intervention was evidenced to reduce stress and boost goals and aspirations, while supporting emotional and social development that may lead to improvements in pro-social behaviour and wellbeing over time. Evidence suggests that the

CbN intervention supports vulnerable young people in particular by introducing novel hands-on experiences, providing an alternative learning environment outside of the classroom, and by encouraging more positive, meaningful, and trusting relationships. In the future, the intervention may be improved further through the development of networks, introduction of stable funding streams, and mentorship schemes that gives students opportunities to stay involved and receive support for longer.

For further information regarding the design and delivery of this intervention, please contact Kate Jameson, Community by Nature (see contacts). For information regarding research please contact LJMU

INTELLECTUAL PROPERTY AND PERMISSION TO USE

The Research evaluation is owned by Liverpool John Moores University, use of this report should be clearly referenced and cited in any documentation.
The Intervention was designed, developed and implemented by Community by Nature. For details of this intervention or reference to it, users should contact Kate Jameson.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical permission for study was approved by the LJMU UREC (ref: 21/PSY/001). To promote transparency in context, the qualitative findings of this report presents verbatim quotes from a range of the participants to act as evidence to support the analytical commentary. In recognition of legal and ethical processes, participants of this study did not agree that their transcripts were fully shared publicly, so supporting data beyond the sample quotation extracts is not available.

DATA AVAILABILITY STATEMENT

Raw data has been included as evidence via extracted quotes from verbatim transcripts as samples of evidence. Full transcript release has not received ethical approval or participant consent. For further study details, please contact corresponding author at LJMU. The authors confirm that the data supporting the findings of this study are available within the article.

COMPETING INTERESTS

There was no competing interest that needs to be declared.

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Appendices

Interview schedule – Current Students

Intro: "Thank you so much for doing this interview with me. I have a few questions that I'd like to ask you about your experiences of taking part in the Forest School. If you don't want to answer a question or if it's unclear then just tell me and we can skip it, or I can explain it. We will write up what we find from all of our interviews and we will send you a copy of our findings. Everything that you and I talk about today is private or confidential unless I'm worried that any harm or danger is going to come to you or to anyone else, in which case then I would need to speak to my supervisor, whose name is Emma, and Mr Chapman, but I would tell you if I was worried in this way first. You are welcome to stop the interview at any time. I'm going to turn on my audio recorder now"

1. Can you tell me a bit about what you did at the Forest School?

   Possible prompts:
   - What did you do in the sessions?
   - When did you take part in the sessions?
   - How often did you do the sessions?
   - Who taught the sessions?

2. I would really like to hear your opinion about some of the activities you took part in. Can you tell me about what you thought of them?

   Possible prompts:
   - [Give examples of activities they may have taken part in, e.g. woodland skills (outdoor-cooking, building fires, tool-use such as knives and bow saws, shelter-building, building rope-structures), outdoor woodcraft, arboriculture, and meal prep]
   - What did you like about the activities? Why? What were your favourites?
   - What did you not like about the activities? Why? What were your least favourites?
   - Were there any parts of the sessions that you found more difficult? What/why?
   - In what ways are these activities different to your normal lessons at school? Are they better or worse (and why)?

3. What difference (if any) do you think that the sessions have made for your friends, or other people who participated in the sessions?

4. What difference (if any) do you think that the sessions have made for you?

   Possible prompts:

- Have you noticed any changes in yourself/your behaviour/your mood since taking part in Forest School? If yes, can you give an example?
- What kinds of things will you do/are you doing differently (if anything) after taking part in the Forest School? Why?
- Has the Forest School changed how you feel about the future?
- What kinds of things have you learnt (if anything) after taking part in the sessions?
- Do you use what you have learnt inside and outside school? How?
- Compared to before you started the sessions, how have you been feeling now? What led to this?

5. What have you found helpful about the Forest School? Why?

   Possible prompts:
   - Have some sessions/types of activities been more helpful/useful than others? What/why? (**n.b.** aim here is to ascertain which elements of the intervention contributed to which outcomes)

6. Has there been anything that you have found unhelpful about the sessions? What/why?

7. Is there anything that you would like to be different about the sessions? What?

8. Finally, would you recommend the Forest School to other schools/people your age? Why/why not?

   Possible prompts:
   - How would you describe the lessons to other people who haven't taken part?

9. Is there anything else that I haven't asked about or that you wanted to mention before we finish the interview?

Conclusion: "Thank you very much again for doing this interview with me today; it's been so helpful to speak to you. Do you have any questions for me now that we've finished the interview? Would you like to choose a pseudonym for when we write up our findings? This is another name that we will use for you in our write-up to help ensure that other people don't recognise you"

Interview schedule – Previous Students

Intro: "Thank you so much for doing this interview with me. I have a few questions that I'd like to ask you about your experiences of taking part in the Forest School. If you don't want to answer a question or if it's unclear then just tell me and we can skip it, or I can explain it. We will write up what we find from all of our interviews and we will send you a copy of our findings. Everything that you and I talk about today is private or confidential unless I'm worried that any harm or danger is going to come to you or to anyone else, in which case then I would need to speak to my supervisor, whose name is Emma, but I would tell you if I was worried in this way first. You are welcome to stop the interview at any time. I'm going to turn on my audio recorder now"

1. Can you remember what you did with the Forest School?

   Possible prompts:
   - What did you do in the sessions with the Forest school?
   - When did you take part in the sessions?
   - How often did you do the sessions?
   - Who taught the sessions?

2. I would really like to hear your opinion about some of the activities you took part in. Can you tell me about what you thought of them?

   Possible prompts:
   - [Give examples of activities they may have taken part in, e.g. woodland skills (outdoor-cooking, building fires, tool-use such as knives and bow saws, shelter-building, building rope-structures), outdoor woodcraft, arboriculture, and meal prep]
   - What did you like about the activities? Why? What were your favourites?
   - What did you not like about the activities? Why? What were your least favourites?
   - Were there any parts of the sessions that you found more difficult? What/why?
   - In what ways are these activities different to your normal lessons at school?

3. What difference (if any) do you think that the sessions made for your peers, or other people who took part in the sessions?

4. What difference (if any) do you think that the sessions made for you at the time?

   Possible prompts:
   - Did you notice any changes in yourself/your behaviour/your mood after taking part in Forest School? If yes, can you give an example?
   - What kinds of things did you do differently (if anything) after taking part in the Forest School? Why?
   - Did the Forest School change how you feel about the future?

- What kinds of things did you learn (if anything) after taking part in the sessions?
- Did you use any of the things you learnt inside and outside school? How?
- Compared to before you started the sessions, did your feelings change? What led to this?

5. Do you think the sessions have had any lasting impact on you? Which elements? Why/why not?

6. What did you find helpful about the Forest School? Why?

   Possible prompts:
   - Were some lessons/activities more helpful/useful than others? What/why? (**n.b.** aim here is to ascertain which elements of the intervention contributed to which outcomes)

7. Was there anything that you have found unhelpful about the sessions? What/why?

8. Is there anything that you would have liked to have been different about the sessions? What?

9. Finally, would you recommend the Forest School to other schools/kids? Why/why not?

   Possible prompts:
   - How would you describe the lessons to other people who haven't taken part?

10. Is there anything else that I haven't asked about or that you wanted to mention before we finish the interview?

Conclusion: "Thank you very much again for doing this interview with me today; it's been so helpful to speak to you. Do you have any questions for me now that we've finished the interview? Would you like to choose a pseudonym for when we write up our findings? This is another name that we will use for you in our write-up to help ensure that other people don't recognise you"

Interview schedule – Stakeholders

Intro: "Thank you so much for doing this interview with me. I have a few questions that I'd like to ask you about your experiences of the Forest School. If you don't want to answer a question then just tell me and we can skip it. We will write up what we find from all of our interviews and we will send you a copy of our findings. Everything that you and I talk about today is private or confidential unless I'm worried that any harm or danger is going to come to you or to anyone else, in which case then I would need to speak to my supervisor, Emma, but I would tell you if I was worried in this way first. You are welcome to stop the interview at any time. I'm going to turn on my audio recorder now"

1. Can you tell me about your role in relation to the Forest School?

2. What do you view as the aims of the intervention?

3. **For intervention developers:** can you explain how you developed the intervention and why you developed it in the way you did?

4. **For intervention developers:** can you explain how you think the intervention works?

   Possible prompts:
   - What are the intended outcomes of the intervention? And what are the key components that are crucial to this?

5. As part of their participation with the Forest School, students will have engaged in a number of activities. For example: woodland skills (outdoor-cooking, building fires, tool-use such as knives and bow saws, shelter-building, building rope-structures), outdoor woodcraft, arboriculture, and meal prep. What do you think students will have got out of these activities?

Possible prompts:
- What do you think the students would have liked about these activities? Why? What do you think their favourites would have been?
- What do you think the students would NOT have liked about the activities? Why? What do you think were their least favourites?
- Were there any parts of the sessions that students may have found more difficult? What/why?
- In what ways are activities different to normal lessons at school?

6. What sort of support in relation to mental health and wellbeing do you think these students had access to prior to enrolment with the Forest School?

   Possible prompts:

- Is this still happening while the Forest School is being implemented? Why/why not?
- How does the Forest School fit with/replace/build on what the young people had access to in relation to mental health and wellbeing?

7. **For deliverers:** Is there anything you find that makes implementing the Forest School difficult? What/why?

   Possible prompts:
   - What challenges have you experienced in relation to implementing the Forest School?
     - School-level factors?
     - Student-related factors?
     - Preparation, training, and intervention material related factors?

8. **For deliverers:** Is there anything you find that makes implementing the Forest School easier recently? What/why?

   Possible prompts:
   - School-level factors?
   - Student related factors?
   - Preparation, training, and intervention material related factors?

9. What difference (if any) do you think that the Forest School has made for students? Why/how?

   Possible prompts:
   - Differences to mood/behaviour/aspirations/criminality
   - What kinds of things do you think they have you learnt (if anything) after taking part in the sessions?
   - Do you think they will use what you have learnt inside and outside school? How?
   - What kinds of things do you think they will you do/are you doing differently (if anything) after taking part in the Forest School? Why?
   - Compared to before students started the sessions, how do you think they are feeling now? What led to this?
   - Do you think the Forest School will change how students feel about the future?

10. What long-term difference (if any) do you think that the Forest School has made for students? Why/how?

11. What difference (if any) do you think that the Forest School has made for the organisations and staff involved (schools and teachers, for example)?

12. Would you recommend the Forest School to other organisations? Why/why not?

13. What advice would you give another school seeking to implement the Forest School?

14. Is there anything else that I haven't asked about or that you wanted to mention before we finish the interview?

Conclusion: "Thank you very much again for doing this interview with me today; it's been so helpful to speak to you. Do you have any questions for me now that we've finished the interview?