Adventure Learning

Evaluation Report

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The project was independently evaluated by a team from Sheffield Hallam University; Benjamin Willis, Sarah Reaney-Wood, Sean Demack, Tim Jay and Jean Harris-Evans.

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The evaluation team at Sheffield Institute of Education included experts in trial design, analysis, implementation and process evaluation, and outdoor adventure learning. The team have extensive experience conducting evaluation studies as part of the Education Endowment Foundation evaluator panel and for other organisations including government departments, charities, and other policymakers.

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Glossary of terms

Term	Description
Adventure Learning	Typically involves outdoor experiences such as climbing or mountaineering, survival, ropes, or assault courses, or outdoor sports such as orienteering, sailing, and canoeing. These can be organised as intensive residential courses or shorter courses run in schools or local outdoor centres. Adventure education usually involves collaborative learning experiences with a high level of physical (and often emotional) challenge as well as practical problem-solving, explicit reflection and discussion of thinking, and emotion. See link below for more detail. **https://educationendowmentfoundation.org.uk/education-evidence/teaching-learning-toolkit/outdoor-adventure-learning**
Commando Joe's (CJs)	CJs has been running activity programmes for young people in primary and secondary schools, youth groups, and communities since 2009 and has a military-inspired ethos run by ex-service personnel. CJs strapline, 'no child left behind', aims to raise attainment, develop self-belief, and improve behaviour and attendance at school through a range of activities. Through this, it believes learners can develop, for example, resilience, self-awareness, communication, and teamwork. CJs claims to be the largest provider of Character Education in the U.K. See its website link for more detail. **https://commandojoes.co.uk/**
Commando Joe/ Jane (CJ)	Ex-services members of staff employed through CJs that deliver its programme within schools.
Implementation and process evaluation (IPE)	An IPE is commissioned alongside every EEF impact evaluation to understand how a project is implemented on the ground and to understand why a particular set of outcomes occur. See link below for more detail. **https://educationendowmentfoundation.org.uk/public/files/Evaluation/Setting_up_an_Evaluation/IPE_Handbook.pdf**
Internal consistency	How well a questionnaire or survey measures what it is meant to measure. This is usually measured using Cronbach's alpha.
Interrater reliability	The extent to which different observers are consistent in their judgements.
Logic model	Logic models are visual representations of ToCs, depicting how an intervention leads via a set of steps from resources and inputs to outputs and then sets of outcomes.
Non-cognitive skills	The term 'non-cognitive skills' refers to a set of attitudes, behaviours, and strategies that are thought to contribute towards success in school (and beyond), such as motivation, perseverance, and self-regulation.
The Outward Bound Trust (OBT)	The Outward Bound Trust (OBT) is an educational charity that inspires young people to believe they can be more than they ever thought. The OBT has been running residential outdoor activities since 1941 and has six centres in the U.K. that cater for young people in school groups or similar. The OBT uses learning and adventure in the wild to challenge young people to never give up, to change their perspective, and to learn the most important lesson: to believe in themselves. Its ethos is that outdoor adventure learning challenges young people to develop self-confidence and self-belief, communication and teamwork, resilience etc., with a strapline of 'you can be more than you think'. See its website link below for more detail. **https://www.outwardbound.org.uk/**
Randomised controlled trial (RCT)	A study where a similar number of participants (schools or students) are randomly assigned to two (or more) groups to test a specific intervention.
School-based lead (SBL)	A term used to describe a dedicated member of staff within a school that is the nominated point of contact responsible for communication with the intervention deliverer and SHU ensuring that students complete all the evaluation requirements and who typically accompany students during the intervention and lead post intervention work.
Test-retest reliability	The consistency of scores on a test measure across time, using test-retest correlations.
Theory of change (ToC)	A ToC is a detailed description and illustration of a programme or intervention that outlines how and why desired change/s and outcomes are expected to take place in a particular context.

Executive summary

The project

The Outward Bound Trust (OBT) intervention in this evaluation was a five-day, four-night residential course at an outdoor centre. Activities included gorge walking, wild camping, and hiking. All activities were delivered by trained instructors from the OBT with teachers and other staff, such as teaching assistants, supporting. The OBT is an educational charity with a mission to inspire young people to be resilient, curious, and ready for the challenges of life.

The Commando Joe's Education Services (CJs) intervention in this evaluation was delivered over five consecutive days and took place in the students' school utilising classrooms, halls, and playing fields. The intervention consisted of a variety of activities requiring teamwork, communication, and listening skills. Activities were delivered by trained instructors from CJs with teachers providing supervisory assistance. CJs is an educational provider utilising the expertise of former service personnel to improve educational outcomes and develop resilience, empathy, and self-awareness.

This evaluation investigated whether adventure learning-type activities lead to an improvement in self-regulation, student engagement, and behaviour in hard-to-reach students in Year 9 (age 13 to 14). All delivery was completed between September 2019 and January 2020. Ninety-seven schools were randomly allocated to receive either the OBT intervention, the CJs intervention, or to a third group in which schools received a payment to put towards enrichment activities. Data was collected at three points: prior to intervention, immediately after the intervention, and 12 to 18 months afterwards. The primary outcome was the impact on self-regulation 12 to 18 months after the intervention. A process evaluation was conducted, including observations, virtual case study visits, interviews, and surveys.

While intervention delivery was completed before the outbreak of the Covid-19 pandemic, the pandemic and partial closure of schools affected the evaluation. Interim outcomes were collected shortly after completion of the OBT and CJs interventions and prior to the arrival of Covid-19, but follow-on school activities after the intervention were compromised and data collection for the primary outcome was delayed. Therefore, caution is required when interpretating the findings. The original trial protocol included maths attainment in Year 10 as a secondary outcome. This was removed due to the proposed assessment, the digital Progress Test in Maths, being cancelled due to the pandemic. An addendum report will examine potential impact on GCSE Attainment 8 scores from the students when they reached Year 11.

Table 1: Key conclusions

Key conclusions
1. Students that received the OBT intervention made very small or no improvement in their self-regulation 12-18 months after the intervention, on average, compared to students in control schools. Students that received the CJs intervention made small improvements, on average, compared to students in control schools. These results have a very low security rating: circumstances largely relating to the impact of Covid-19 led to very high attrition and therefore no EEF padlocks could be given.
2. Students in the OBT intervention schools showed moderate improvements in their behaviour 12-18 months after the intervention, compared to students in control schools. Immediately after the intervention students showed small positive changes in self-regulation and small positive improvements in school engagement compared to students in control schools. These findings should be interpreted with caution as they are based on samples with high attrition at both timepoints.
3. Students in the CJs intervention schools showed large improvements in their behaviour 12-18 months after the intervention, compared to students in control schools. Immediately after the intervention students showed moderate positive changes in self-regulation and moderate positive improvements in school engagement compared to students in control schools. As above, these findings should be interpreted with caution as they are based on samples with high attrition at both timepoints.
4. The OBT intervention was delivered as planned and the provision and staffing were viewed positively by most staff and students. Activities provided opportunities for students to re-engage with school staff and nurture peer relationships through teamworking. The level of challenge was hard, but achievable, allowing students to experience success, increase their sense of self-worth and to advance a growth mindset. In interviews with school staff and students it was reported that for some students involvement had a profoundly positive impact in terms of their self-confidence, openness to new opportunities and greater long-term aspirations. However, for a small minority, the level of physical challenge reinforced negative feelings of self-worth and inability to achieve.
5. The CJs intervention was largely delivered as planned and the programme and instructors were generally positively received. The scenario-based missions were described as high quality and authentic. Compared to the OBT programme the level of physical challenge was lower with the activities being less physically demanding and delivered at their school. Activities were designed to facilitate students to assume and share different roles across missions, strengthening peer relationships, improving teamworking and communication; whilst also encouraging independence. For some students' enthusiasm for the

mission-based tasks decreased over the week. This may have been different had the programme been delivered through weekly sessions over a year, as is typical for how the CJs intervention is delivered outside of this evaluation.

EEF security rating

These findings have a very low security rating. This was an efficacy trial, which tested whether the intervention worked under developer-led conditions in a number of schools. The trial was a well-designed, well-powered, three-armed randomised controlled trial. The students in schools taking part in the OBT or CJs interventions were similar to those in the comparison schools in terms of prior attainment. However, 65% of the students who started the trial did not complete end-point data collection. The security rating relates to the primary outcome, which was the end-point data collection. Although the programme was implemented as intended up until the start of the Covid-19 pandemic, its effect on follow-on activities in schools makes it harder to accurately estimate the impact of the interventions on students in the trial.

Additional findings

Students that received the OBT intervention made, on average, very small or no improvement in their self-regulation 12 to 18 months after the intervention, compared to those in the control school equivalent. Students that received the CJs intervention made small improvements, on average, compared to students in control schools. This is our best estimate of impact, which has a very low security rating. As with any study, there is always some uncertainty around the result: the possible impact of the OBT intervention includes moderate negative effects and moderate positive effects, and for CJs the possible impact includes small negative effects and moderate positive effects. Immediately after delivery all students demonstrated improved self-regulation, and after 12 to 18 months all students demonstrated positive changes in behaviour and school engagement. These effects were slightly higher for students in the CJs intervention. Students eligible for free school meals demonstrated similar changes to other students.

The impact findings should be interpreted with caution due to missing data at each timepoint. Data collected in the period immediately following intervention delivery was available for 72% of students. For the primary outcome data collected 12 to 18 months after the end of the trial, only 35% could be included in the analysis. The extent of missing data for the primary outcome was due to Covid-19 disruption. Covid-19 also disrupted possible follow-up opportunities for students to showcase what they had learnt within a normal school environment and to access wider activities that might have been on offer. In addition, the wide-ranging societal effects of the pandemic on familial relationships, social isolation, and anxiety make it challenging to confidently draw a link between the programmes and longer-term effects.

There was limited evidence of significant post-intervention work planned for or undertaken by schools. This was compromised by the emergence of Covid-19 shortly after delivery, however, the OBT intervention put little emphasis on follow-up work and in the CJs intervention only small numbers of schools took up the offer of whole-school training or accessed resources afterwards. Through providing greater guidance and signposting to examples of follow-up work, both interventions would likely strengthen the likelihood of maximising post- intervention impacts.

Cost

The average cost of the OBT intervention for one class was around £14,400, or £600 per student per year when averaged over three years. This includes cover for two teachers attending the residential course. The OBT do offer an assistance programme subject to eligibility criteria reducing the cost by 40% on average. The average cost of the CJs intervention for one class was around £4,300, or £189 per student per year when averaged over three years. This includes cover for two teachers who were present for the intervention as delivered in this evaluation; in usual delivery, attendant teachers are not required.

Impact

Table 2: Summary of impact on primary outcome

Outcome/ Group	Effect size (97.5% confidence interval)	Estimated months' progress	EEF security rating	No. of students	P Value	EEF cost rating
Self-regulation of learning (T3) OBT v control	+0.03 (-0.20; +0.25)	N/A	🔒🔒🔒🔒🔒	491 (263; 228)	0.78	£ £ £ £ £
Self-regulation of learning (T3) CJs v control	+0.08 (-0.15; +0.31)	N/A	🔒🔒🔒🔒🔒	503 (275; 228)	0.42	£ £ £ £ £

Introduction

Background

Stott et al. (2015) describe outdoor adventure education as 'a sector of educational provision that has provided challenging experiences beyond formal schooling with the specific aim of eliciting personal development in young people for over one hundred years' (p.2). Schools and other organisations in the U.K. commonly take groups of young people on outdoor adventure experiences—typically for one week and often with a residential component. Stott et al. note that reviewing or mapping the available research on the effectiveness of outdoor adventure learning is challenging since work is published in a wide variety of journals in different disciplines and that authors may have very different desired outcomes in mind when carrying out studies.

In our analysis of the literature, we noted evidence of effects of outdoor adventure learning on attainment. We also noted evidence of effects on various non-cognitive factors that may in turn lead to improvements in attainment in school. Finally, we noted guidance on the methodological approach for researching outcomes of outdoor adventure learning (Fiennes et al., 2015).

Effectiveness of outdoor adventure learning on raising attainment

Meta-analyses have provided some evidence for the effectiveness of outdoor adventure learning on raising attainment (Cason and Gills, 1994; Hattie et al., 1997). These meta-analyses reveal average effect sizes in the region of 0.30, representing a moderate effect. The evidence in this domain requires some updating as available studies are now somewhat old and it is likely that approaches to teaching and learning during outdoor adventure experiences have developed in the last 25 years. There are also difficulties in interpreting outcomes of meta-analyses such as these because there are often major differences between different adventure learning programmes, the lengths of programmes (studies included in Hattie et al. evaluated programmes lasting between 1 and 120 days, with a mean length of 24 days), and the ages of participants (between 11 and 42 years old in Hattie et al., 1997).

Hattie et al. (1997) report an unusual effect whereby attainment continues to improve (with an additional effect size of 0.17) after the end of the intervention and before follow-up analyses. Such follow-up analyses were based on data collected an average of 5.5 months after the adventure learning experience took place. A more recent study on learning outdoors also points to increased attainment six weeks after the intervention was concluded (Quibell and Law, 2017). It is not clear exactly why effects on attainment may continue to accrue once the adventure learning experience has ended; however, one plausible explanation is that there are mediating factors (such as the non-cognitive factors discussed in the next section) that improve participants' ability to learn and to benefit from school and other learning opportunities in a more effective way than was possible before the adventure learning experience took place. This finding points to the potential importance of follow-up actions in schools and attention in study methodology to the development over time of contributing factors to raised attainment.

Hattie et al. (1997) reported that effect sizes varied widely across different interventions and that effectiveness correlates with both the length of the programme and with the age of participants: higher effect sizes are associated with longer programmes and older participants. Bowen and Neill (2013) found a similar relationship with participants' ages. Research in this field is limited by the wide range of interventions that can be included with the label 'outdoor adventure learning'. Programmes vary in length, in kinds of activity, in level of challenge, in the ages of participants, and in the inclusion of a residential component, among other factors. The current evaluation tested two five-day interventions for 13- to 14-year-old students, an experience commonly used by schools in the U.K. This places the intervention at the lower end of the range in terms of both age of participants and the length of the intervention when compared with the studies included in the review conducted by Hattie et al. (1997). However, it is important to note the challenges involved in carrying out a study over a longer period with a large enough sample for sufficient statistical power to detect effects, in terms of both time and costs.

Effectiveness of outdoor adventure learning on improving non-cognitive outcomes

Many studies have provided evidence for the efficacy of outdoor education in the development of responsibility, leadership, self-reliance, and self-awareness (Bobilya et al., 2011). Other studies have shown outdoor education as

being effective in developing a sense of resilience—a concept that includes perseverance, self-awareness, social support, confidence, and responsibility to others. The working assumption is that increased levels of resilience represent a protective factor, supporting learners in their educational journeys (Ewert and Yoshino, 2011). This aligns well with well-established psychological theory (for example, Bonanno, 2004) concerning the connection between the experience of challenge and the development of resilience. Further, many meta-analyses of outdoor education have pointed to the largely positive impact on young people's attitudes, beliefs, and self-perceptions (including self-concept, confidence, self-esteem, locus of control, and coping strategies) and interpersonal skills (including communication skills and teamwork). However, as in the literature on attainment outcomes, reasons why outdoor education works in improving such non-cognitive skills are not fully clear (Hattie et al., 1997; Martin and Leberman, 2005).

Programmes that provide longer, more sustained experiences, appropriate scaffolding, and reviewing that facilitates learning are deemed to be more effective (Rickinson et al., 2004). Meta-analyses confirm the notion that outdoor education has positive benefits on children and young people's fitness, motor skills, self-confidence, self-esteem, and relationships with adults, and this finds widespread accord in the literature (Fiennes et al., 2015; Povilaitis et al, 2019). Further, a positive impact on students' mindset and resilience is supported (for example, O'Brien and Lomas, 2017). A particular type of outdoor learning—adventure or wilderness therapy, found predominantly outside the U.K.—claims to offer successful clinical interventions with older young people, families, and adults, and to have positive outcomes in terms of self-concept (Bowen and Neill, 2013). There is some recognition in the literature that many of the concepts outlined above are imprecise, and definitions vary from study to study, making the study of their development and that of any non-cognitive outcomes a difficult process (Leather, 2013). This has also made analysis of outcomes across studies challenging as different measures have been used. Prince (2020) also highlights the lack of high-quality research that examines long-term outcomes following outdoor adventure learning experiences. Prince's retrospective analysis of data from participants in outdoor adventure experiences revealed lasting benefits in self-confidence and independence. Again, this analysis included programmes of different types, lasting for different durations, and including participants of different ages making it somewhat difficult to interpret findings and to extract actionable guidance for schools.

Implications for research methods

Several of the sources referred to above, particularly Hattie et al. (1997) and Prince (2020), emphasise the potential lasting benefits of outdoor adventure learning and the potential for benefits to continue to develop for some time following the experience. The need for long-term follow-up is compounded by Marsh et al.'s (1986) identification of a 'post-group euphoria' phenomenon: they note that self-reported scores for various measures may be artificially inflated by feelings of elation on the last day of an outdoor adventure experience and so measures should be taken by researchers to allow for this.

The literature provides evidence for improvements in both attainment and non-cognitive factors following participation in outdoor adventure programmes. Several researchers highlight the lack of understanding in the field of how programmes lead to positive changes. These observations in the available literature highlight the need to carry out research studies that explore interactions among measures over time, as well as looking for changes in individual measures. This need is further emphasised by Hattie et al.'s (1997) finding that effects on attainment often continue to accrue for months after the conclusion of a programme, suggesting the involvement of mediating factors.

A further implication of the lack of clear understanding of the mechanism through which any improvements are achieved is a need for high-quality process evaluation alongside evaluation of potential impacts. The literature highlights several potential contributing factors that may explain observed effects, such as the experience of physical or mental challenge, residential experience with a group and being away from home, interactions with positive role models, and experience of teamwork to solve novel problems (for example, Higgins et al., 2014). However, there is a lack of research that systematically and rigorously analyses the presence of such factors and explores participants', teachers', and outdoor adventure leaders' perceptions of their instantiation during a programme and their effects during and following the experience of a programme.

Summary and rationale for this study

This evaluation has been designed to address several limitations in the literature. It compares two adventure learning interventions, each taking place over a continuous five-day period, with a control group. A key difference between the

two interventions is the inclusion of a residential component: one is a five-day residential programme away from home while the other takes place within school grounds. The study includes an appropriate number of participants to ensure sufficient statistical power to test hypotheses. A key feature of this evaluation study is that it tests the effects of the interventions on multiple outcomes and investigates relationships among these outcomes over time following the intervention. This allows the team to test some of the findings generated from previous studies and meta-analyses claiming that adventure learning programmes can have long-lasting effects post-intervention. The design of the evaluation will also provide evidence regarding relationships between non-cognitive measures (self-regulation and engagement) and academic outcomes over time, which is likely to have implications for other areas of educational research and intervention development.

Intervention

Schools that were part of the intervention arms of the trial were allocated one of the two different types of adventure learning inputs. One was a week's residential experience at an **Outward Bound** centre and the other was a week's intervention in school provided by **Commando Joe's**. The interventions were distinctive in several ways and therefore are described separately below.

A) OUTWARD BOUND

Name

1) Outward Bound. The Outward Bound Trust (OBT) has been running residential outdoor activities since 1941 and has six centres in the U.K. that cater for young people in school groups or similar.

Why?

2) The OBTs ethos is that outdoor adventure learning challenges young people to develop their self-confidence and self-belief, communication and teamwork, resilience, and so forth, with a strapline of 'you can be more than you think'.

What?

3) Twenty-four Year 8 students achieving below their expected levels of progress because of a lack of engagement with education or lack of character skills to support learning (with at least 50% of participants from each school eligible for Pupil Premium or having an equivalent need for support) were selected by schools prior to randomisation. The OBT have six centres based in different areas of outstanding natural beauty; most are owned outright like the centre at Aberdovey, but others are owned by, for example, the National Trust, as at Ogwen. Groups bring their belongings and are provided with accommodation and catering. Minibuses are available from the centres, which transport the young people to and from various sites for walking, camping, and other adventurous activities. Through the week, appropriate equipment is provided to the young people by the OBT depending on the activity, for example, ropes, tents, waterproofs, and buoyancy aids. Students taking part in the intervention were largely responsible for caring for and cleaning up their equipment at the end of the day. Informational materials were provided to young people and centre/school staff, usually in hardcopy format as opposed to digital. Examples include rules and timetables being available on the whiteboard in the centre and 'route cards' being given by instructors to their school staff and students in daily briefings.

4) Letters of consent were required from students' parents or carers before being able to participate. Schools were responsible for this aspect of the organisation, along with the recruitment of appropriate students for the intervention. The focus of the adventurous activities was on achievement of the group's learning outcomes, which often included increased abilities in communication, teamwork, leadership, and decision-making. Typical activities involved gorge walking, hiking, camping, climbing, scrambling, collection of firewood, and expedition planning. Decision-making as a team was encouraged and, where appropriate, students were encouraged to come to collective decisions where there were options of, for example, a longer expedition walk, or a shorter day walk with an overnight camp. Procedures were mainly aimed at the safety of participants and staff as well as ensuring as much engagement of the students as possible. Procedural tasks involved daily briefings between centre staff and school staff teams. At these briefings, weather conditions would be reviewed alongside that of

individual student's needs and progress and there were opportunities to discuss a staff response to incidents since the previous briefing. This led in some cases to revisions or changes to activities or learning outcomes. Phones were taken away from young people, or access limited, to support engagement in activities and limit distraction. Activities were performed by OBT instructors first to assess risk and check safety, for example, water temperature and depth first checked by the OBT instructor before allowing young people in. The OBT has standard operating procedures (SOP) which are authorised for use across all OBT centres; this ensures student to staff ratios are in line with national requirements and appropriate checks for specific technical activities are carried out. Some procedures are specific to individual centres depending on the environmental context of that centre.

Who delivered the intervention?

5) The OBT centre staff was made up of instructors with varying roles and responsibilities such as senior and support staff and managerial staff members such as line managers whose role was to oversee centre operations. The instructors had varied backgrounds including in youth work and running outdoor and youth centres. Some were participating in academic study such as PhD research; another was completing a degree on topics within coaching and mentoring young people. OBT staff all seem to have relevant training and skills in safety and outdoor activities as well as teaching young people various skills. Catering staff form part of the centre team, ensuring breakfast and dinners are provided; some caterers were employed by OBT directly, others employed through third parties. The school-based staff team was made up of at least two members of school staff in each of the trips. The background of the school staff team varied considerably. One trip saw a SBL teacher, and a teaching assistant lead the young people. Their background and training meant they were more familiar with the young people and their needs and would support OBT staff with behaviour and motivation. Another trip saw two teachers join who were not—in this instance—involved in planning or negotiating aspects of the trip and did not know all the young people present. A third example saw three members of the school join to support OBT and centre staff. From the OBT's perspective, the main responsibility of the school staff was for student behaviour and pastoral support, particularly in the evenings and overnight. There were some differences in the approach of school staff: although most were very happy to support students in all the adventurous learning activities, others were less so, often depending on the staff member's confidence in taking part in the particular adventurous activity.

How was the intervention delivered?

6) Given the residential nature of the intervention, instruction and team briefings were face to face with both students and staff. Due to the environment of the intervention being rural, signal reception was not as strong as more urban areas therefore it may not have been suitable to integrate digital technology with outdoor activities or for manual or instruction download. However, as students were discouraged to use their phones, this will have limited digital access, especially during designated sessions with OBT staff. Instructors did have phones with them for safety and they were often also used to take photos of the groups during the interventions. Activities were focused on teambuilding and groupwork, so modes of delivery were predominately focused on groups. However, there was some one-to-one work where behaviour management necessitated this or where students needed individual motivation.

Where was the intervention delivered?

7) The interventions took place in a range of rural locations, all in areas of outstanding natural beauty. Fieldwork was carried out in Aberdovey and Ogwen in Wales and Ullswater in the Lake District, but the intervention also took place in other parts of the Lakes (Howtown) and in Scotland (Loch Eil). The locations have a centre as the group's base and are surrounded by a variety of hills, mountains, lakes, and so forth. There are some features that are specific to the location that may alter the safety or activity procedures followed. For instance, the centre in Ogwen is near a busy A-road and in a valley. The centre of Aberdovey is by the sea, making it conveniently situated for water sports and land-based activity as well as having forest-based log cabins. The Ullswater centre is set in 18 acres of woodland on the north shore of Ullswater, the second largest lake in the Lake District, and is also accessible by A-roads and the M6.

When did the intervention take place and how much time did it take?

8) The intervention was delivered once only and over a five-day period. Each day saw a structured agenda starting with breakfast, a morning brief on what the day would involve, activities, and then returning to base to clean and prepare equipment ready to be used again before eating and settling down for the evening. Across the centres in the study, the daily structure was similar. This typically involved wake up, breakfast, and dorm inspection from 7am; activities took place usually from 9am until 5pm; from 5:30pm, the evening meal took place, followed by an evening activity at 7pm. From 8:30pm, participants would prepare to settle for the evening, ready for bedtime at around 10pm. The activities varied considerably in terms of physical and mental input and some were designed to encourage the young people to stretch themselves further out of their comfort zones as time went on.

Tailoring

9) The intervention was tailored to a range of variables which largely depended on young people's needs and behaviour, the weather, and the activities available in the vicinity of the centre. In many centres the weather played a significant part in dictating the activities day by day due to microclimates which made the weather particularly unpredictable. Across each of the sites, alternative activities were prepared to ensure a match of the activity could be found to the needs of the intervention group where, for example, the weather stopped a particular activity or it was perceived that a particular activity was too challenging for the group in question. Some centre staff placed a particular emphasis on tailoring the experiences on offer to specific schools and students in question. In some cases, this was negotiated in advance of the intervention and there was a recognition by centre staff of the importance of gleaning the input of school-based staff.

Modifications

10) Modifications during the intervention included adapting approaches to motivation and behaviour management—and adapting tasks for young people who may have been injured, as had happened with one student in Ogwen[1]—while preserving the planned learning outcomes. In one observed example, instructors attempted to focus the students on improved listening and communication skills in response to tensions that arose with young people from a different school. The students involved from the intervention school were managed and encouraged to 'ignore them' and were purposely taken away from the situation. Two students in the Ullswater intervention were sent home due to poor behaviour.

How well was the intervention implemented?

11) Safety and risk assessment in the OBT intervention was important and across all sites this was taken seriously through daily briefings on aspects of weather, behaviour, and engagement. The OBT instructors led on this as they were more qualified to consider such factors and knew the specific environmental issues related to their location. All settings had provisional activity plans in place, organised by the OBT instructors, which were adhered to as closely as possible and where feasible. Appropriateness to adhere to the initial plans was assessed by the instructors on a day to day basis, again through daily meetings and being amended to ensure safety and engagement. The locations all had a similar timetable structure for each day and the OBT instructors encouraged teamwork and promoted motivation to maintain the delivery of the intervention within the time allotted.

12) Due to the various environments, interventions were delivered slightly differently as activities and strategies were location, weather, and learner dependent. Having said that, across locations behaviour management and the encouragement of teamwork and motivation were imperative to fidelity of the intervention delivery because of the challenging terrains. At times, attention was focused on individuals who may have been struggling where others did not appear to, and at other times this was group based. Signs of struggle were often noticed through either observation of the OBT instructors or the school-based team members or through conversation with

[1] Appropriate staff were mobilised to help the young person and deal with the situation accordingly.

learners. Often, learners were told the end was 'just around the corner' to keep them from falling behind. This contributed to being able to deliver intervention activities within the time set by OBT instructors. Overall, delivery appeared to have gone according to plan across the sites, and any time the original plan was not followed there were planned alternatives in place to avoid disruption.

B) COMMANDO JOE'S

Name

1) CJs has been running activity programmes for young people in primary and secondary schools, youth groups, and communities since 2009 and has a military-inspired ethos.

Why?

2) CJs strapline, 'no child left behind', aims to raise attainment, develop self-belief, and improve behaviour and attendance at school through a range of activities. Through this, it believes learners can develop, for example, resilience, self-awareness, communication, and teamwork. CJs claims to be the largest provider of 'character education' in the U.K. with its provision weighted towards primary schools.

What?

3) Twenty-four Year 8 students achieving below their expected levels of progress because of a lack of engagement with education or lack of character skills to support learning—with at least 50% of participants from each school eligible for Pupil Premium or identified by schools as having an equivalent need for support—were selected by schools prior to randomisation to take part. The intervention consisted of a variety of activities requiring teamwork, communication, and listening skills. The programme is built around 12 missions designed to engage students in a coherent set of activities that lead to specific outcomes. The overarching concept is framed around 'Operation Blackout', which is introduced through a credible and well-designed video scenario outlining that a cyber-attack has taken place resulting in a national power failure. CJs provides students with a 'COJO' box containing a variety of physical materials for students to use for activities and includes items such as tarpaulin, tent pegs, walkie-talkies, remote control cars, and vaults. 'Top secret', military-type paraphernalia is also used for decorative purposes, such as army painted table covers, netting for walls, and so forth. Students were also provided a printed work booklet. Informational materials included having the outcomes and targeted skills for each mission at the disposal of learners, usually presented on classroom whiteboards and display boards. They also had printed information sheets detailing the key aims and objectives and the core skills required of the students to overcome the specific challenges of each mission. Whiteboards were used to detail which roles were allocated to each student in every team. Those roles were chosen largely through group discussions, which encouraged collaboration and decision-making and tended to rotate across missions.

4) School staff present were noted in each of the observations to have mostly acted as supervisory assistants and intervened when behaviour was particularly poor. During this time, praise or discipline was directed at the group, possibly as an attempt to encourage students to see themselves as a collective. Examples of this included the group losing a minute of the lunchtime or being required to stay behind at the end of the day as they were not quiet by the time the CJs instructor had counted to ten. At the end of each day, a debrief took place where students would be given time to reflect and evaluate the activities they had participated in, what they learned or did not learn, and what they thought went well or did not go well.

Who delivered the intervention?

5) CJs staff members were mostly responsible for the delivery of the intervention. At least one instructor was present in each setting but two were present in a small minority of settings. For the purposes of the trial, delivery was shared between just three specific male instructors (Commando Joe's). Each school was asked to have two members of staff present throughout the intervention. It was frequently noted that both schoolteachers were not always available at the times that they were requested to be present by the CJs staff. CJs instructors were noted to be greatly experienced in delivering the intervention. School staff roles in each setting served a supervisory purpose and involved intervening when behaviour was particularly problematic. Some school staff

did have relevant experience of CJs-type activities, for example, one observation noted a PE teacher as part of the school staff support team and in another a staff member had responsibility for the school cadet's scheme and the Duke of Edinburgh's Award programme.

How was the intervention delivered?

6) Mode of delivery was in person and usually provided to full groups, except in areas where an individual student may have needed speaking to separately regarding poor behaviour. Even in such circumstances, it was observed that the group were responsible for each other in terms of behaviour and engagement. Delivery usually involved the instructor standing in front of the students explaining the aims and rules of the tasks and detailing what skills the students would need to utilise to complete it. Behaviour interventions were delivered by school staff present if behaviour become particularly problematic, otherwise the CJs instructor would deal with behavioural issues in an ongoing way.

Where was the intervention delivered?

7) The intervention took place on school premises; this typically involved work in the classroom, school hall, and on the school playing field (or equivalent) depending on the activity taking place. There were occasions where room availability was an issue, especially on the first day of the intervention. In such instances this required the instructor to think on their feet and modify what they had planned to deliver. Despite poor weather, students were still expected to participate in outdoor activities such as building a shelter. The school hall was frequently utilised for activities that required a large space but could not be done outdoors, such as the obstacle course for an electronic remote-controlled car. The classroom was usually utilised for briefings and debriefs.

When did the intervention take place and how much time did it take?

8) The intervention was delivered across a school week with a number of 'missions' being completed. The structure of the interventions worked to the normal school day timeframe.

Tailoring

9) Planned tailoring included making links from the CJs programme to the school curriculum, as noted in one setting. Prior knowledge of the curriculum would have been needed by the CJs instructor to make relevant links, though this was supported by one of the teachers at the setting who was also aware of the CJs concept. CJs offered optional whole-school twilight training to school staff to raise wider awareness about the programme but this was only taken up by a small minority of schools in the intervention.

Modifications

10) It has been noted the CJs staff members had the expectation that school staff would be always present as required for the intervention to take place. However, in at least one setting this did not happen and meant that the CJs staff member was left alone with students and faced difficulties in managing behaviour as well as supervising tasks. This will have resulted in the instructor making changes to his approach and focus at short notice. More frequently, it was noted was that there was turnover of school staff throughout the week or that there were often periods where only one staff member was present. In other instances where students were unable to go outside, for example due to weather conditions, school staff were to take over and supervise an alternative indoor activity. It should also be noted that the programme delivered by CJs typically takes place over an entire term, but in a less intensive manner than was undertaken for the trial.

How well was the intervention implemented?

11) Adherence and fidelity were assessed by the CJs instructors during the intervention. Teachers and other school staff, at times, were not present when required or otherwise engaged during the intervention and so were unable to assess the intervention delivery holistically. In terms of maintaining fidelity to the implementation of the programme, there seemed to have been a lot of emphasis on behaviour management and approaches to keeping learners engaged with teamwork and activities. One instructor did note that some students were particularly badly behaved, which impacted on his ability to deliver content. Behaviour management strategies

were an important aspect for the CJs instructors if they were to adhere to the programme as closely as possible. At other times, CJs instructors were left without a schoolteacher or other member of staff present when required, which meant they had to oversee activities while also managing behaviour. During the interventions, the activities were the same or similar across the sites and followed the same order suggesting the CJs staff were trained to follow the CJs set 'missions' and protocols.

12) Adherence on the part of CJs staff part appeared to be as consistent as possible as the activities across locations were the same or very similar. Therefore, the interventions appear to have been delivered as planned according to the 12 standardised 'missions' comprising Operation Blackout (see Appendix K) though aspects such as behaviour and school staff absence may have impacted the level to which it was delivered. For instance, poor behaviour was noted to have impacted the ability of a CJs instructor to deliver the intervention as effectively as other instances and teacher absence meant that CJs behaviour management was perhaps more prominent at times than intervention delivery.

The logic models in Figures 1 and 2, agreed with both developers at the set-up stage, present the theories of change (ToC) underpinning the OBT and the CJs programmes respectively. In both, the change process is focused on the student, with in-school changes thought to further cement the student changes. The model highlights the inputs expected and the short, medium, and longer term outcomes. Furthermore, we highlight the contextual factors that may impact on each of the projects at various stages.

Figure 1: The Outward Bound Trust evidence-informed logic model

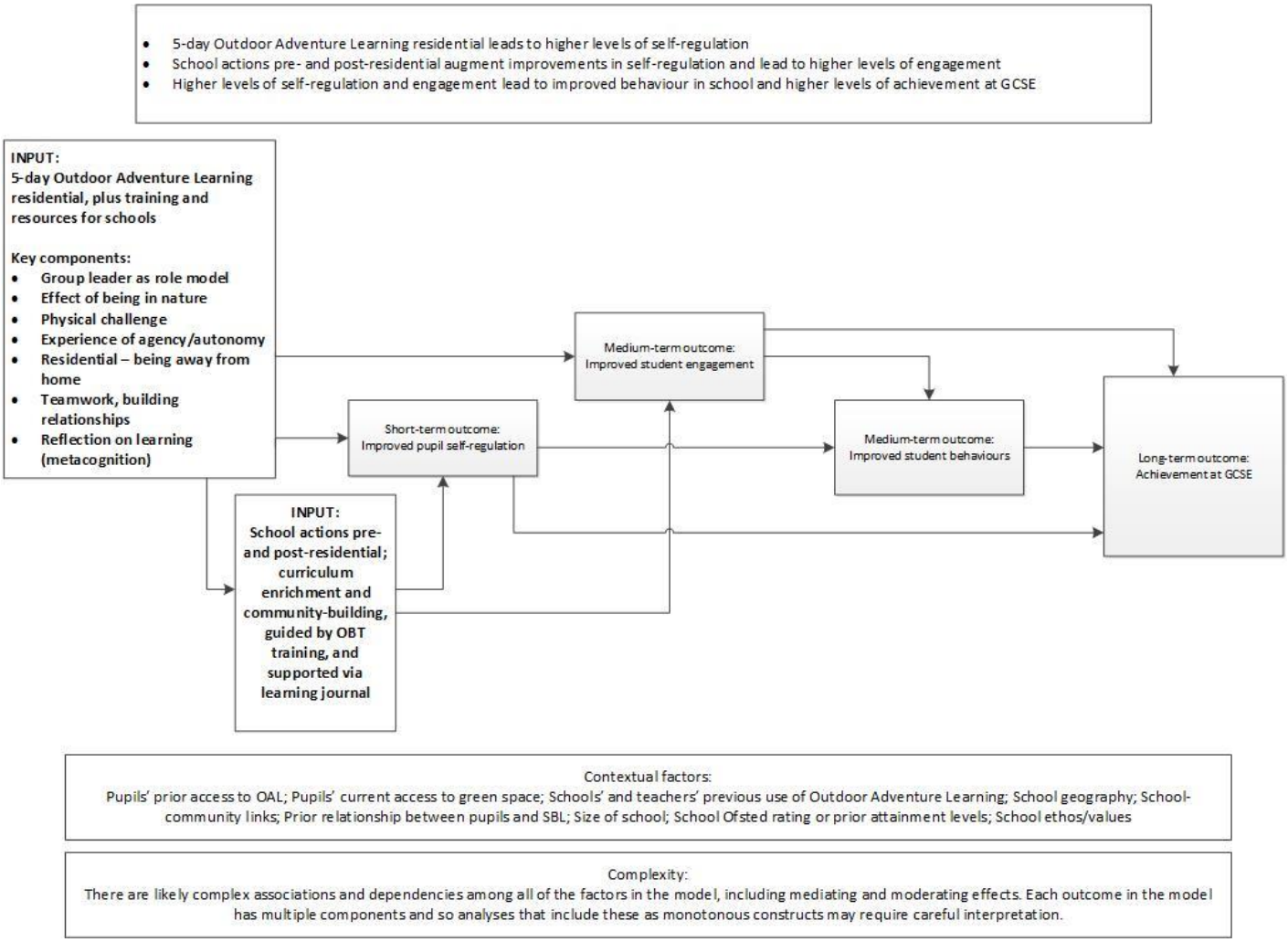
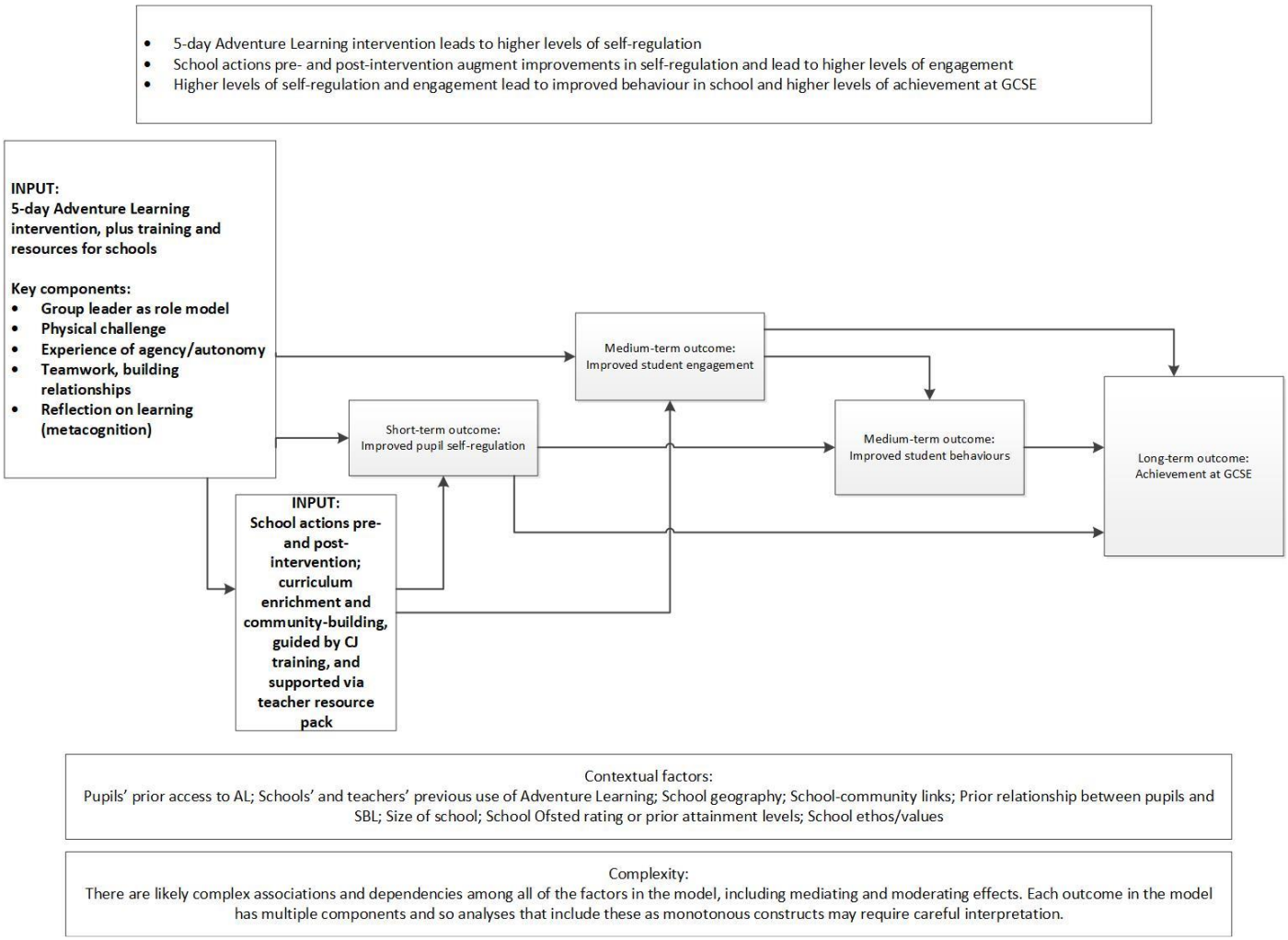


Figure 2: Commando Joe's evidence-informed logic model



Change process for both The Outward Bound Trust and Commando Joe's

The respective five-day interventions run by CJs and the OBT are intended to act as a catalyst to the realisation of the intended short, medium, and long term (non-cognitive and attainment-related) outcomes depicted in the logic models above. Both interventions are focused on a particular subgroup: 24 Year 9 students (12 to 13 years old) perceived to be under-achieving in some way at school due to a lack of engagement with education or lacking character skills to support learning (with at least 50% from each school eligible for Pupil Premium or deemed to have an equivalent need for support). As is outlined in the earlier literature review, change related to adventure learning is likely to be attributable to a complex interaction of factors. While there were clear differences between the activities of the two programmes, the underlying theories of change were similar.

The causal theory for the interventions is based on evidence that suggests that taking part in outdoor adventure learning (OAL) leads to improvements in self-regulation in the short and long term, which then leads to an increase in attainment. Activities that take place during OAL are challenging to students, often placing them outside their comfort zones. As such, OAL helps to develop skills such as resilience, confidence, and self-esteem. Improvements in these non-cognitive skills, particularly resilience, can be viewed as protective factors that support students in their future learning journey (Ewert and Yoshino, 2011).

Rickinson et al. (2004) identified several programme attributes that were related to success, such as integrated pre- and post-intervention activities, longer, more sustained activities, and linking learning to the curriculum. Therefore, school actions to build on the five-day OBT residential before and after the experience are proposed to be essential for both enhancing effects on self-regulation and therefore leading to higher levels of student engagement. However, it should be noted that while resources were left with teachers and schools, neither the OBT nor CJs formally stipulated what schools should do pre or post intervention nor were prescriptive about how resources should be used.

Both self-regulation and student engagement have well-established effects on attainment. However, it is likely that some of this effect is accounted for by the mediating factor of positive, prosocial school behaviours and school attendance. It is therefore thought that behaviour in school may improve because of OAL, and this in turn works with both increased self-regulation and engagement to improve academic attainment. Contextual factors will be important in assessing effects.

The success of the programme is also thought to be dependent on several contextual factors related to both the school and the individual student. These are:

- access to green spaces in and out of school: students with limited access to green space either as part of the school day or out-of-school may benefit more from the intervention;
- schools' previous use of OAL;
- school geography, Ofsted grading, and ethos; and
- relationship between the SBL (and other school staff involved) and students.

We discuss in the conclusion (Section 6) the extent to which the evidence collected from both the impact assessment and the IPE evaluation supports the suggested logic model for the OBT and CJs programmes. We also suggest areas where the programme may have not been delivered in line with the logic model and future areas for development.

Impact analysis research questions

RQ1: Does participation in the OBT intervention lead to changes in self-regulation of learning compared to a control at long-term follow up?[2]

RQ1b: Does participation in the CJs intervention lead to changes in self-regulation of learning compared to a control at long-term follow up?

RQ2: Does participation in the OBT intervention lead to different changes in self-regulation of learning compared to participation in the CJs intervention at long-term follow up?

RQ3: Is there an immediate effect of an adventure learning intervention on self-regulation?

RQ4: Does an adventure learning intervention lead to changes in student behaviours in schools after approximately one year?

RQ5: Does an adventure learning intervention lead to changes after two years in general attainment at GCSE (Attainment 8)?[3]

RQ6: Does an adventure learning intervention lead to changes in student engagement?

IPE research questions

RQ7: To what extent do different adaptations at school level moderate primary and secondary outcome measures? How are changes in attainment due to the intervention mediated and/or moderated by students' non-cognitive skills and student behaviours in school?[4]

RQ8: How is the intervention delivered by the OBT and CJs? What are the responses from students and staff to their experience of the intervention? Do students believe that the intervention has improved their non-cognitive skills?

[3] RQ5 will be considered in the addendum to this report following the release of GCSE attainment data in autumn 2022.
[4] RQ7 will be considered in the addendum to this report following the release of GCSE attainment data in autumn 2022.

RQ9: What approaches have schools from the Intention to Treat (ITT) groups implemented throughout Year 9 and Key Stage 4 to build upon the initial intervention? How and why have these approaches been taken? What are the experiences and responses from students and staff?

RQ10: How have schools in the control group used funding from the trial to support student learning?[5]

The **protocol** and the **SAP** can be found on the EEF **website.**

Ethics and trial registration

This evaluation went through an independent ethics review using the Converis system at Sheffield Hallam University. Details of the trial were documented in an ethics application and two independent reviewers reviewed the application. As part of the ethics application, we were also required to submit information sheets (Appendix C) and consent forms (Appendix D). Independent reviewers at SHU are experienced researchers from a range of disciplines and are trained to ensure consistent and high quality ethical reviews. The adventure learning trial application was passed on its first submission. Two follow-up applications were made to reflect changes to data collection because of the Covid-19 pandemic. The follow-up applications included adding in an additional control school survey (to capture whether incentive payments had been spent) and changing the data collection to remote from face to face due to Covid-19 restrictions.

The OBT was responsible for recruitment to the trial, but the recruitment and consent materials were produced by SHU. When schools were approached to take part in the trial they were provided with a MoU (Appendix B). This included an explanation of what an RCT is, the rationale for the trial, ethical considerations, an explanation of randomisation, the responsibility of all parties, timelines for the trial and data collection, additional tasks required from intervention (OBT and CJs) schools, and GDPR statements. Signatures were required from four members of school staff: SBL lead, headteacher, member of administrative staff, and a member of the board of governors. The rationale for this was to ensure that the trial was well supported by the school and that contingencies were in place should any key member of staff leave the school. The adventure learning trial was registered with the ISRCTN (ISRCTN68006446) prior to the interventions and data collection commencing.

Data protection

- SHU were the data controllers for the adventure learning evaluation. The processing of personal data was defined under GDPR as a specific task in the public interest. The legal basis for processing personal data is 'Public Task' (Article 6 (1) (e)). **https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/lawful-basis-for-processing/public-task/**
- At all points SHU were responsible for retrieving and processing data as part of this trial using password protection and secure transfer methods such as SHU ZendTo.
- For the purpose of research, the responses were linked with information about the students from the National Pupil Database (NPD) and will be shared with the EEF, the EEF's data processor for the archive (currently FFT Education), the Department for Education, and, in an anonymised form, with the Office for National Statistics[6] and potentially other research teams.
- For transparency, the precise terms of this data sharing were stated in a fair processing notice, specifying the personal data (student names, student ID numbers, FSM status, KS2 attainment, KS4) that were processed, in line with GDPR. The data sharing agreement detailed the personal data to be shared and a fair processing notice was sent to all participating schools as per GDPR requirements.
- After the evaluation with the EEF is complete, SHU will retain participants' data for research and knowledge-exchange purposes, including presentations at professional or academic conferences or publications in

[5] In the original protocol this was referred to as a 'passive' control. In reality, the control fell somewhere between passive and active. Control group schools were provided with a payment of £1,500, in three instalments, on completion of different elements of the study. The expectation was that this money be put towards providing activities to enrich educational experiences, with a specific focus on the 24 students identified to take part in this research.
[6] Pending new procedures being finalised by the DfE and the ONS.

professional or academic journals, for a period of ten years after the last publication arising from the evaluation. After this period, should SHU see the value in keeping the data for longer, an anonymous dataset would be created where participants, schools, and teachers were non-identifiable

- All documentation relevant to data protection is included in the appendices, either as a copy or a link to an electronic version.

Project team

Evaluation team: Sheffield Hallam University

Ben Willis: co-principal investigator, co-project manager and IPE strand lead. Responsible for the strategic and day to day direction of the project alongside Dr Sarah Reaney-Wood, responsible for the successful completion of all aspects of the IPE strand.

Dr Sarah Reaney-Wood: co-principal investigator, co-project manager and impact evaluation lead. Responsible for the strategic and day to day direction of the project alongside Ben Willis, including testing management. Responsible for the successful completion of all aspects of the impact strand.

Sean Demack: statistical lead, responsible for the successful completion of the statistical design and analysis.

Professor Tim Jay: subject specialist, was the initial principal investigator and lead on trial design.

Dr Jean Harris-Evans: subject specialist, support for IPE strand.

Delivery teams

The Outward Bound Trust[7]

Daniel Cibich (Head of Education Partnerships) was responsible for the recruitment of schools to the trial (pre-randomisation stage), the booking of schools allocated to the OBT group onto OBT courses, in line with programme timetable, overseeing OBT delivery aspects of the trial in conjunction with relevant operational staff at OBT's residential centres, and liaising with CJs and SHU on all delivery-related aspects as relevant.

Isabel Berry (Head of Trusts and Foundations) managed the OBT project and liaised with the EEF and, as relevant, with CJs and SHU.

Natalie Harling (Director of Business Development) supported the evaluation of the trial.

Emma Ferris (Head of Evaluation) advised the OBT, as requested, on aspects relating to delivery and evaluation.

The OBT delivery team comprised a number of specialist OBT staff (instructors, course directors) across five OBT residential centres.

Commando Joe's

Michael Hamilton (founder and Director of CJs) was responsible for communication with the EEF and SHU.

Daniel Kelly (Operations Director) was responsible for strategic oversight of the project.

James Thorpe (National Programme Trainer) oversaw the day to day running of the project, the training of the CJs instructors, implementing the programme, and training wider school staff for the schools that opted for the training.

The CJs delivery team comprised three specialist instructors, each working closely with Daniel and James to ensure they were as well prepared in advance of their school visit as possible.

[7] Daniel Cibich and Isabel Berry no longer work for The Outward Bound Trust.

Methods

Trial design

Table 3: Trial design

Trial design, including number of arms		Three-arm randomised efficacy trial
Unit of randomisation		School
Stratification variable(s) (if applicable)		N/A
Primary outcome	Variable	Self-regulation of learning
	Measure (Instrument, scale, source)	Self-Regulation of Learning - Self-Report Scale (SRL-SRS; Toering et al., 2012).
Secondary outcome(s)	Variable(s)	Self-regulation immediate post-test. General attainment after two years. Student engagement (immediate post-test and after one year). Student behaviour in school after one year approximately (this was delayed due to Covid-19 school closures).
	Measure(s) (Instrument, scale, source)	SRL-SRS. Attainment 8 (NPD). Student Engagement Instrument (SEI). Strengths and Difficulties Questionnaire (SDQ)
Baseline for primary outcome	Variable	Self-regulation of Learning prior to randomisation.
	Measure (Instrument, scale, source)	Self-Regulation of Learning - Self-Report Scale (SRL-SRS; Toering et al., 2012).
Baseline for secondary outcome(s)	Variable	Mathematics attainment. School engagement. Student behaviour in school.
	Measure (Instrument, scale, source)	KS2_MATSCORE, NPD; SEI; SDQ.

The Adventure Learning trial was a three-arm efficacy trial with randomisation at the school level using simple randomisation (no stratification). A three-arm trial was the most appropriate to be able to compare the two interventions (OBT and CJs) with the active control group and with each other. While both the OBT and CJs both deliver adventure learning based activities, there is a key difference to the provisions they offer: the OBT provision is delivered at one of its centres, outside of the school environment; CJs provision is delivered within a school setting. As such, comparisons between the two aimed to tease apart the importance of delivery environment and sleeping away from home in the impact on self-regulation, student engagement, and behaviour.

The control group schools received an incentive payment of £1,500, paid in three instalments. The first was made after baseline data collection, the second after the post intervention data (T2) collection had taken place, and the third after primary outcome data had been collected (T3). Control schools were advised to spend this money on the 24 students from their school taking part in the trial. Broad advice was given that schools should spend it on ‘enrichment’-type

activities but avoid spending it specifically on adventure learning-related activities. The incentive payment was contingent on schools engaging with each stage of data collection; in cases where schools failed to adequately engage in student or form tutor testing, the control payments were withheld.

The primary outcome for the trial was self-regulation of learning at timepoint three (T3) and was assessed using the Self-Regulation of Learning Self-Report Scale (SRL-SRS; Toering et al., 2012). The secondary outcomes were self-regulation (SRL-SRS) at T2, student engagement (at both T2 and T3) assessed using the student engagement instrument (SEI; Appleton et al., 2006), and student behaviour at T3 assessed using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001).

Changes to design and methods due to disruptions caused by Covid-19

No changes were made to the trial design across the course of recruitment as the number of schools required to run a three-armed trial were successfully recruited (97 schools were randomised). However, as noted in the updated SAP, we did drop one of the secondary outcome measures, mathematics attainment (to be assessed via a GL test), due to the disruption of Covid-19 in schools and undue burden. As detailed in the updated SAP, GCSE attainment remains a longer-term secondary outcome and an addendum report will present these analyses.

Data collection for T3 testing was delayed due to Covid-19 related disruptions. The initial plan had been to collect this data in October 2020 but due to school closures data collection started later in December 2020 and was kept open until May 2021. As a result, the data collection period was longer than previous data collection periods (usually three to four weeks). Finally, initial plans had been to undertake the IPE data collection face to face in the school setting, however—again due to Covid-19 related school closure and social distancing guidelines—IPE data collection took place remotely, either via Zoom, Teams, or telephone.

Participant selection

For schools to be eligible they had to have at least 20% of students eligible for Pupil Premium. Each school was to identify 24 students to take part in the trial and half of those identified also had to be recognised as disadvantaged, either in receipt of Pupil Premium or through economic, social, or environmental issues known to the school. Students were considered especially suitable if they were achieving much lower than teacher expectations. Students were in Year 8 during the recruitment period and therefore in Year 9 when they received the intervention and were followed up in Year 10. After randomisation, 92 schools were considered appropriate to continue to the trial: three had selected participants of the wrong age and therefore were considered not eligible to continue; in addition, two requested to withdraw from the trial. Therefore, there were 92 treatment units in total.

Recruitment to the trial was handled by the OBT with support from the evaluation team at SHU. Information sheets, MoUs, and consent forms were created by the evaluation team and shared with deliverers. The OBT utilised pre-existing contacts it had in addition to advertisements being used on the EEF website and social media pages. SHU was available to be contacted by the OBT and by schools—by email and telephone—to answer any questions. This was beneficial as it meant that alongside the MoU and information sheet, schools were fully informed about the trial and understood what they would be expected to do if they decided to take part. As a result, only a small number of schools were lost across the course of the trial.

Outcome measures

Table 4: Primary and secondary outcomes

Outcome measure	Baseline	T2	T3	KS4
Self-Regulation of Learning (SRL-SRS)	✓	✓(Secondary)	✓(**Primary**)	-
Student Engagement Instrument (SEI)	✓	✓(Secondary)	✓(Secondary)	-
Strengths and Difficulties Questionnaire (SDQ)	✓	-	✓(Secondary)	-
Five SDQ subscales: prosocial; emotional problems; conduct problems; hyperactivity and peer problems subscales	✓	-	✓(Secondary)	-
Attainment	✓(at KS2)	-	-	✓(Secondary at GCSE)

Baseline measures

At baseline, students completed the Self-Regulation of Learning Self-Report Scale (SRL-SRS; Toering et al., 2012), the Student Engagement Instrument (SEI; Appleton et al., 2006), and provided details about their experience of 'outdoor type' activities and availability of green spaces. In addition, the students' form-tutor or teacher was also required to complete the teacher version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001).

Primary outcome

The primary outcome was self-regulation of learning assessed using the self-regulation of the SRL-SRS total score. No adaptations to the SRL-SRS were made and the scale was used in full. Self-regulation of learning relates to how students learn to manage their emotions, behaviours, and attitudes to maximise their success in learning (Etkin, 2018). The SRL-SRS total score at timepoint 3 (T3) was used as the primary outcome measure. The SRL-SRS is a 46-item measure (initially 50 items, but four were dropped during validation) and the measure has a good level of psychometric acceptability (Toering, 2012). During validation of the SRL measure, confirmatory factor analysis (CFA) was conducted, and several changes were made to improve model fit. A six-factor model was considered to have the best fit and factor loadings were between 0.44 and 0.80. For this trial, a composite measure, using all six subscales was used as the primary outcome. As a measure of acceptable internal consistency, all Cronbach alphas were higher than 0.70 and all inter-item correlations were positive. Reliability of the SRL-SRS is good with test-retest reliability over a four- to six-week period of between 0.69 and 0.84 for the six subscales, with relative temporal stability observed, and longitudinal measurement invariance analysis that demonstrated the factor structure was equal over time (this section has only provided an overview; please see Toering et al., 2012 for further discussion).

Self-regulation of learning at T3 was identified as the appropriate primary outcome for several reasons. First, several studies have demonstrated evidence of the efficacy of outdoor education on raising attainment and on the development of non-cognitive factors such as self-reliance and self-awareness (Bobilya et al., 2011), confidence, self-esteem, and locus of control. It is also noted that the benefits of outdoor learning may be lasting and continue past the initial experience of outdoor education. This work hypothesises that one of the explanations for this is that the development of non-cognitive factors outlined above act as mediating factors, improving students' ability to learn and benefit from experiences in a positive way. In addition, T3 was made the focus to help to combat the issue that any positive changes

seen in student outcomes close to completion of the intervention may be due to 'post-group euphoria' (Marsh et al., 1986). Finally, self-regulation was closely aligned with the practices of both the OBT and CJs.

Student data was collected using an online version of the SRL-SRS and—except for T3 students—completed in school, under exam type conditions. For the T3 measure, students either completed the measure at home or in school and either online or on a paper version. It is important to acknowledge that the questionnaires completed were not academic tests. As such, the evaluation team felt that invigilation would have been inappropriate. The outcome data was analysed by Dr Sarah Reaney-Wood and Sean Demack, both of whom were part of the evaluation team.

Secondary outcomes

While there were four specific outcomes for our impact analyses, the use of interim (T2), final (T3), and follow-on (KS4/GCSE) timepoints along with exploratory analyses of subscales resulted in a total of ten secondary outcomes. Please refer to Table 6 below for a summary of the outcomes and timepoints.

Student engagement

Engagement in school was identified as an appropriate secondary outcome as it was hypothesised that engagement in school could be another mediating factor, alongside self-regulation, in the relationship between outdoor learning experiences and an increase in attainment. In addition, engagement with learning and with school was emphasised by leaders of both the OBT and CJs as a key aim of their interventions.

The SEI was included as a secondary outcome measure and the total score was used to assess whether a change in student engagement could be observed across the course of the trial. 'Student engagement' relates to how engaged students are in school and their own learning. In addition to total score, the SEI has six subscales that measure six aspects of student engagement: teacher-student relationships, peer support at school, family support for learning, control and relevance of schoolwork, future aspirations and goals, and intrinsic motivation. The overall SEI scale is constructed from 33 items. Internal reliability of the six subscales is between 0.72 and 0.88 (Appleton et al., 2006). The SEI secondary outcomes were analysed as complete scales at both T2 and T3.

Behaviour in school

The SDQ (Goodman, 2001) teacher version is a 25-item scale used to assess behaviour in 4- to 16-year-olds. As specified in the SAP, the ITT analyses examined the impact of the OBT and CJs on total SDQ score at T3, and follow-on exploratory analyses examined impact using subscales relating to prosocial behaviour, emotional problems, conduct problems, peer problems, and hyperactivity. Unpacking the SDQ outcome into the prosocial score and other four subscales enabled a closer look at how the intervention may have impacted on student behaviour.

The SDQ is commonly used in clinical assessments and has become increasingly popular as an outcome measure in a variety of evaluations. The SDQ has good psychometric properties with good internal consistency (Cronbach's alpha 0.62 to 0.85) and test-retest reliability of $r = 0.62$. In addition, the SDQ is a multi-respondent measure with inter-rater reliability of 0.37 to 0.58 for self-report and parent-report and 0.24 to 0.39 for self-report and teacher report.

Attainment outcomes

GCSE Attainment 8 (DfE, 2016) will be used as the final secondary outcomes measure at the end of Year 11 (2021/2022) GCSEs. As such, this will not be included in this report, but will be reported in an addendum. Attainment 8 will be obtained using NPD data and matched to the primary and secondary data collected prior to randomisation. KS2 attainment will be used as a covariate in models with Attainment 8 as the outcome.

Attainment 8 was included as the final secondary outcome of the trial due to the extensive literature pointing to the positive benefits of outdoor learning on attainment.

Sample size

Minimal detectable effect size was used to determine the appropriate sample size based on two comparisons, for example, the OBT versus control and CJs versus control. As the trial involves multiple comparisons, a Bonferroni correction was used altering the alpha value from 0.05 to 0.025. At protocol and at randomisation, Level 1 pre- and post-test correlations were estimated based on test-retest reliability of the primary outcome measure (between 0.69 and 0.84 over four to six weeks; Toering et al., 2012). We reduced this to a more conservative 0.5 due to the longer duration between pre- and post-test in this trial. Level 2 correlations were estimated as 0.25 following recommendations from the EEF. School-level ICC has been estimated as 0.05. There is little information in the literature regarding likely ICC for non-cognitive measures, however, this is anticipated to be lower than that for measures of attainment (typically 0.10 to 0.20).

At randomisation

A power analysis for the two-level RCT with 66 schools per comparison and 24 students per school was carried out at the protocol development stage. Similarly, a power analysis was undertaken for the FSM subsample (approximately 12 students per school, given sampling requirements in the protocol). The target number of schools for recruitment was 99 (33 per arm), but 97 schools entered randomisation: 33 schools were randomised to the OBT arm, 32 to the CJs arm, and 32 to the control. The results of this analysis estimate that, for the main ITT analyses the design will be able to detect an effect size of 0.22 or higher as statistically significant ($\alpha < 0.025$) with a statistical power of 0.80. For the FSM subsample the design will be able to detect an effect size of 0.25 or higher as statistically significant ($\alpha < 0.025$) with a statistical power of 0.80.

At the protocol stage, the MDES estimates were based on the participation of 33 schools per trial arm (and therefore 66 schools in each of the OBT versus control and CJs versus control comparisons) and 24 students per school (12 of whom classed as FSM). At the randomisation stage, changes related to the number of schools for each comparison included a reduction to 65 for the OBT versus control and to 64 for CJs versus control, while all other assumptions remained the same as the protocol stage. The MDES estimate for the ITT analyses was 0.21 SDs at protocol, which increased slightly to 0.22 SDs at randomisation. The MDES estimate for the FSM subsample analyses was 0.25 SDs at both protocol and randomisation.

An indicative power analysis was undertaken at the analysis stage that drew on the empirical data for estimates of school level ICC (0.11 for the OBT versus control; 0.07 for CJs versus control) and the T1 to T3 correlation at the student level (0.53 for OB versus control; 0.47 for CJs versus control) and school level (0.84 for OBT versus control; 0.70 for CJs versus control). This resulted in indicative MDES estimates of between 0.29 (OBT) and 0.34 (CJs) for the ITT analyses and between 0.34 (OBT) and 0.37 (CJs) for the FSM subsample analyses.

The notable reduction in statistical sensitivity illustrated by the indicative MDES estimates at the analyses stage reflect the profound problem of attrition that this trial suffered at the T3 SRL-SRS primary outcome (65% overall). With such sizable attrition, even greater caution is needed in interpreting the indicative MDES estimates—given that it is highly likely that randomness (and hence internal validity) will have been undermined.

The trial was not powered to detect an effect on the FSM subgroup as the primary population of interest.

Randomisation

Randomisation was conducted after baseline data collection had taken place and was carried out in three stages. The first phase saw 63 schools randomised in April 2019, the second phase saw 28 schools randomised in June 2019, and the final phase saw six schools randomised later in June 2019. As outlined in the MoU and the information sheet, schools were aware that they would be randomised and had the chance of being assigned to either the OBT intervention arm of the trial, the CJs arm, or the control arm. Randomisation was simple randomisation: no stratification or blocking was used.

Microsoft Excel was used to create the random allocation sequence. First, a list of the schools was compiled and entered into Excel, one cell per school, and the =RAND() function was used to create a random number for each school. The cells were then organised into numerical order and assigned either a '1', '2', or '3' (1 = OBT, 2 = CJs, 3 = control).

The random number sequence was generated by one of the evaluation team (Reaney-Wood) and randomisation was at the school level, not at the student level. The randomisation process was checked with the statistical lead before execution. To ensure independence, the OBT was responsible for informing schools of which trial arm they had been allocated to and of the next steps required of the schools. Analysis was not undertaken blinded.

Statistical analysis

Primary analysis

The primary analysis followed an intention to treat (ITT) approach. As such, students were included in the analysis even in the absence of full data or compliance with the intervention. The analysis of non-compliance and missing data is further discussed below.

A multilevel analysis, with students clustered in schools, was conducted for each of the research questions using STATA version 17. To answer research questions 1a and 1b ('Does participation in the OBT intervention lead to changes in self-regulation of learning compared to a passive control? and 'Does participation in the CJs intervention lead to changes in self-regulation of learning compared to a passive control?') multilevel models were conducted in three stages. The first model was a null model with just SRL-SRS as the outcome. The second was descriptive and included group identifier as a covariate and SRL-SRS as the outcome. The final model included both group identifier and SRL-SRS at baseline (T1) measuring the impact of the OBT or CJs programme on SRL-SRS compared with the control group. Exploratory analysis following the same multilevel model process described above was conducted to directly compare the impact of the OBT and CJs programmes. Example code in STATA for the primary analysis can be found in Appendix E.

Using the model output generated in STATA, the coef, standard error, z score, p-value, and lower and upper 95% confidence intervals were exported into Excel and converted into effect sizes using the formula specified below.

Secondary analysis

As with the primary analysis, all the secondary analysis followed an ITT approach. As such, students were included in the analysis even in the absence of full data or compliance with the intervention. The analysis of non-compliance and missing data is further discussed below.

Multilevel analyses, with students clustered in schools, were conducted for each of the secondary outcome research questions using STATA, version 17. The same analysis described for the primary outcome was conducted for each of the secondary outcomes (except for attainment, which will be reported in a follow-up report in 2023).

Analysis in the presence of non-compliance

The purpose of the Compliers Average Causal Effect (CACE) analyses was to estimate the impact of the intervention for students deemed to have 'complied' with the OBT or CJs intervention. Compliance was assessed at the student level. 'Compliant' students had to have attended three of the five intervention days. This information was collected by the school and deliverers using a register supplied by SHU. This ensured that information on compliance was collected consistently between schools and delivery staff—and for each intervention. This resulted in a student-level binary compliance variable for both interventions that identified students who attended for more than three days ('1') or did not ('0').

In the SAP, a two stage least squares (2SLS) regression approach was specified for the CACE analyses (Gerber and Green, 2012). The 2SLS approach assumes that the compliance variable is endogenous and will be correlated with the error term of the final model of the ITT analysis for the primary outcome. An endogenous variable breaks assumptions of ordinary least squares regressions, which is why the two-stage approach is needed. The assumption of endogeneity

was tested using the Durbin-Wu-Hausman test; the results were non-significant, which led to our conclusion that the compliance variables were not endogenous.

As we found no evidence that compliance was endogenous, CACE was estimated by replacing the group identifier in the final headline ITT analyses of the T3 SRL-SRS with the compliance binary variable using a standard two-level multilevel regression model. This alternative to 2SLS regression was not noted in the Adventure Learning SAP where it was assumed that compliance to both the OBT and CJs programmes would be endogenous.

Missing data analysis

In the impact evaluation Results section, the amount of missing data for the SRL-SRS outcome is summarised at longitudinal follow-up (T3), interim (T2), and baseline (T1) and possible reasons for missing data are discussed. A multilevel mixed-effect logistic regression model was estimated to check for statistically significant predictors of missing T3 SRL-SRS (primary outcome) data at the student and school levels. Significant predictors and possible mechanisms for the missing data are discussed in the impact evaluation Results section.

The impact of missing data on the ITT analyses of the T3 SRL-SRS primary outcome was also assessed using multiple imputation by chained equations, predicted by T1, T2, and T3 SRL-SRS score, KS2 average points score, and statistically significant variables from the model above. A 'burn-in' of ten was used and 20 imputed datasets were created. The analyses of the T3 SRL-SRSL primary outcome was then redone using the imputed datasets and Rubin's rules were used to combine the multiple imputed estimates to re-estimate the impact of the OBT and CJs programmes on the T3 SRL-SRS primary outcome and on the interim T2 SRL-SRS secondary outcome.

Subgroup analyses

As detailed in the statistical analysis plan, for the T3 SRL-SRS primary outcome, a subgroup analysis was conducted for FSM students using the same multilevel linear model approach as described above for RQs 1a and 1b. The FSM subgroup was identified by the EverFSM_6_P indicator from the NPD dataset.

Additional analyses and robustness checks

Sensitivity analyses were conducted to examine two Covid-19-related issues for the primary outcome, SRL-SRS at T3. First, because of school closures, the T3 SRL-SRS outcome was collected over a protracted seven-month period. Second, to maximise response rates, students were able to complete the survey at home, at school, or another location. Descriptive analyses, (frequency and mean by trial arm) to examine the association between time or location and the SRL-SRS score for students in the OBT, CJs, and control schools and sensitivity analyses models were then constructed. For the protracted data-collection period, the (school-level) time variable was included as a fixed effect and then also included as an interaction with group membership.

Estimation of effect sizes

The causal impact of the OBT and CJs interventions on the T3 SRL-SRS primary outcome was measured using the Hedges g effect size statistic. Hedges g standardises the difference between the attainment of students in the OBT or CJs schools and students in control schools into units of standard deviations. As specified in the EEF analyses guidance, the unconditional variance was used to obtain the standard deviation. Specifically, the variance in the T3 SRL-SRS outcome that is clustered at school and student levels will be used, as set out in the denominator of equation 1. The numerator shown in equation 1 is the adjusted mean difference (in T3 SRL-SRS) between the intervention (OBT or CJs) and control group. This adjusted mean difference is taken from the coefficient for the group membership binary variable from the multilevel analyses. The estimated effect size is obtained by dividing the adjusted mean difference by the specified standard deviation. Similarly, to obtain the upper and lower confidence interval for this effect size, the upper and lower confidence intervals for the group membership coefficient was divided by the same specified standard deviation.

Equation 1 $$ES = \frac{(T-C)_{adjusted}}{\sqrt{\delta^2_{sch} + \delta^2_{pup}}}$$

Where:

- δ^2_{sch} is the school-level variance and δ^2_{pup} is the student-level variance for the T3 SRL-SRS primary outcome from the empty/null multilevel model; and
- $(T-C)_{adjusted}$ is the mean difference between the attainment of students in intervention schools and students in control schools in the original raw (SRL-SRS) units. This is obtained from the coefficient for the school-level 'group' variable from the final (headline) ITT analyses.

Estimation of ICC

School ICC was estimated using a null (empty) two-level multilevel variance components model. Variance decomposition for the two levels (school and student) is presented below along with the ICC estimates for the ITT student sample for the primary outcome.

Table 5: ICC estimates for Self-Regulation of Learning (SRL-SRS) at T3

	OBT v control Estimate (95% CI)	CJs v control	OBT v CJs
Variance decomposition			
School level	1.38 (0.65; 2.95)	0.81 (0.31; 2.10)	1.03 (0.45; 2.35)
Residual	10.79 (9.48; 12.29)	10.71 (9.43; 12.17)	10.61 (9.38; 12.01)
School level ICC	0.11 (0.06; 0.22)	0.07 (0.03; 0.17)	0.09 (0.04; 0.18)

Longitudinal analysis

In the SAP structural equation, modelling was proposed to look at the interactions between the primary and secondary outcome measures. The aim of this is to be able to test some of the theoretical assumptions underlying how adventure learning leads to changes in students, both behaviourally and academically. As described in the first draft of the trial protocol, the plan was to draw on data from a commercial maths test (GL PTM) collected in autumn 2020 when the student cohort would be in Year 10, and on general attainment at GCSE when the cohort took these in summer 2022. As explained in the updated **trial protocols**, Covid-19 led to the cancellation of the Year 10 commercial test. The analyses of GCSE attainment will take place once this data is available in autumn 2022.

Implementation and process evaluation[8]

Research methods

A comprehensive IPE was designed to accompany the impact evaluation to gain a rich and detailed understanding of the extent to which both programmes were implemented in relation to their respective logic models (see Figures 1 and 2). The data also specifically allowed us to answer RQ8 and RQ9. Below we provide an overview of the methods used throughout the research, along with Table 7 that presents the precise number of interviews undertaken for both programmes—and informs the reader of the job role of each interviewee and which school they were from.

Initial surveys with all SBLs

An online baseline survey was undertaken prior to randomisation that sought to understand details about how students were identified and contextual details about each school, for example, access to school grounds, provision of extra-curricular clubs, and other residential opportunities.

T2 follow-up surveys with all SBLs

Undertaken during January and February 2020, just following the OBT and CJs implementation weeks but prior to the arrival of Covid-19, the T2 follow-up surveys with all SBLs sought to explore areas such as:

- student and school responses to the intervention;
- the response to the subsequent strategy for school actions to build on the intervention;
- the involvement in school clubs (or outside); and
- any involvement in other outdoor adventure learning-related activity.

Certain additional questions were differentiated depending on which arm of the trial schools had been allocated to. For example, OBT/CJs surveys sought to understand school-level changes, learning among staff, fidelity, and perceptions of effectiveness whereas surveys for schools in the control group sought to understand what alternative approaches had been taken to improve outcomes for target students.

Additional SBL survey for control schools

Due to the disruptions of the Covid-19 pandemic, not all control schools had the opportunity to spend their incentive payments on enrichment activities by the time intended. Therefore, an additional census survey was used (replacing the control school telephone interviews) to understand whether control schools had spent their incentive payments, what they had spent it on, and how much of a disruption to their intended plans the pandemic had caused.

Observation visits of the OBT residential-based delivery and CJs school-based delivery

During the inception phase, members of the SHU team observed an OBT residential involving a secondary school and a CJs session being delivered at a primary school to inform understanding and the development of data collection tools. Subsequently, three visits each were made during delivery of OBT residentials (Aberdovey, Ullswater, and Ogwen) and school site delivery by CJs (led by three separate instructors). The aim of these observations was to collect data regarding how consistently the OBT, and CJs delivered their programme to different schools and in different settings, and to provide informal opportunities for discussion with students, school staff, and the delivery team. This helped the evaluation team to understand what the core components of the respective interventions were, and what components varied between schools and settings. All the visits happened prior to the emergence of Covid-19.

[8] See **IPE guidance** for further details.

Telephone and online interviews with strategic and operational leads from the OBT and CJs

Building on the work undertaken between intervention leads and SHU during the inception phase that included a half day IDEA workshop, ongoing dialogue, and the co-creation of the MoU, additional telephone and online interviews with strategic leads at the end of the intervention delivery period were carried out to ensure deeper understanding of the interventions, how they were delivered, and to permit us to review the respective logic model diagrams.

Fieldwork directly with schools—post intervention

It is important to acknowledge that fieldwork relating to schools (including case visits and work with SBLs, wider staff, and students) was severely disrupted due to Covid-19. Initially, it was intended we would undertake the school visits face to face but, due to social distancing protocols, this was not possible.

We put out a census call to all CJs and OBT schools inviting them to act as either a case study or for their SBL to be interviewed by the research team (or both). The timelines for data collection needed to be moved several times to comply with different lockdown restrictions (see Table 7 below for specific dates). We adopted an opportunistic approach to fieldwork under the circumstances to maximise the number of participants we could interview and/or that would act as a case study. In several instances, schools that had volunteered to act as a case study school were unable to persuade anyone other than the SBL to undertake an interview. Informal feedback from SBLs suggested reluctance to facilitate access to students for evaluation purposes was primarily driven by concerns about losing further in-school time to non-essential tasks at a time when so much emphasis was being placed on Covid-19 related 'catch-up'. Furthermore, there were some additional concerns raised about the distance from when students had undertaken the intervention and the potential for compromised recall.

Overall, despite our best efforts, numbers of completed case studies were particularly low for the CJs relative to the OBT intervention. We can only speculate as to why there was such a disparity, but perhaps the lengthier period away from school in the OBT environment made the OBT SBLs more committed to facilitating fieldwork. It is likely that the time lag between initial data-collection activities with participants on completion of the intervention and later attempts—some 15 months after participation in the programmes—contributed to the more limited response. Another consideration is the level of emotional and structural upheaval caused by Covid-19 in the intervening period. While we took steps to try to mitigate the worst effects of this—for example, by providing information sheets and online reminder links about the interventions experienced—clarity of recall was affected. We also found that the lack of face to face contact and needing to rely upon online technology in some instances had an inhibiting affect in establishing an effective rapport with certain participants, especially students.

Online case study work with schools running the OBT and CJs programmes

As previously outlined, disruptions to school opening in 2020 due to Covid-19 reduced the window of opportunity for accessing case study schools and the capacity for schools themselves to take part. Although what was achievable in each school varied, we attempted the following for each case study:

- an interview with the SBL;
- focus group(s) with a sample of Year 10 students that attended the intervention (when in Year 9); and
- focus groups(s) or interviews with other relevant staff such as pastoral leads, heads of year, SENCOs, class teachers, and form tutors—normally staff that supported the SBL during the intervention itself.

Online interviews with SBLs from OBT and CJs schools

As previously outlined, in response to the circumstances of the Covid-19 pandemic and the difficulties in recruiting willing participants we used a census approach to SBL interviews. Interviews sought to understand SBL views of intervention delivery and their perceptions of how students experienced it; and to explore how as a school they attempted to build upon the initial external input.

Table 6: IPE methods overview

	OBT	CJs	Control
Observations	Three OBT centre visits at three separate sites: Ogwen, Aberdovey, and Ullswater.	Three one-day school visits observing each of the three different CJs instructors.	N/A
SBL baseline survey and follow up survey	All SBLs.	All SBLs.	All SBLs
Additional SBL survey for control schools	N/A	N/A	All SBLs
Strategic/operational staff interviews	Head of education partnerships; head of evaluation; head of centre (Loch Eil); learning and adventure manager (Aberdovey); senior instructor (Ullswater); director of business development; and course director (Loch Eil). **7 Online Interviews**	CJs lead; operations director; head of operations director; Commando Joe's instructor 1; and Commando Joe's Instructor 2. **Five online Interviews**	
School case studies (typically an SBL, another staff member. and students) All interviews undertaken online	**Case A**: SBL (PE teacher/enrichment lead) and student focus group; **Case B**: SBL (deputy head of year) and student focus group; **Case C**: SBL (head of year) and PE teacher; **Case D**: SBL (assistant head); teaching assistant, and student focus group; **Case E**: SBL (director of enrichment and transition), head of PE, and student focus group; **Case F**: SBL (research and development lead), PE teacher, and student focus group; **Case G**: SBL (assistant head), head of year, and student focus group; **Case H**: SBL (science teacher) and student focus group; **Case I**: SBL (SENCO), vice-principal and NQT, and student focus group; **Case J**: SBL (director of learning and standards), geography teacher, and student interview; **Case K**: SBL (assistant head), geography teacher, and science teacher; and **Case L**: SBL (assistant head); history teacher. **12 case studies**	**Case A**: SBL (assistant head)/academic learning mentor joint interview and student focus group; **Case B**: SBL (assistant head) and head of drama; **Case C**: SBL (head of year), PE teacher, and student focus group; **Case D**: SBL (assistant head) and pastoral manager; and **Case E**: SBL (head of SEN), teaching assistant, and student focus group. **Five case studies**	
Individual SBL interviews	SBL 1 (vice principal); SBL 2 (assistant head); SBL 3 (assistant head); SBL 4 (assistant head); SBL 5 (head of year); SBL 6 (principal); SBL 7 (head of year); SBL 8 (head of year); and SBL 9 (head of year). **Nine SBL online interviews**	SBL 1 (assistant principal); SBL 2 (head of PE); SBL 3 (achievement leader); SBL 4 (assistant principal); SBL 5 (PE technician); SBL 6 (PE teacher); SBL 7 (achievement coordinator); SBL 8 (head of year); SBL 9 (Pupil Premium coordinator); SBL 10 (assistant head); SBL 11 (enrichment coordinator); SBL 12 (English teacher); SBL 13 (assistant head). **13 SBL online interviews**	

Interviews were conducted using semi-structured interview schedules, audio-recorded and transcribed. Interviews typically lasted 45 to 60 minutes with strategic and operational stakeholders and SBL; interviews involving wider school staff and students tended to last around 30 to 45 minutes.

All interview transcripts were uploaded and analysed using the NVivo Qualitative Data Analysis package. A thematic approach was taken to analysis with key themes initially deductively coded into a coding framework (see Appendix F)

based on each programme's logic model and the key research questions of the project. However, there remained scope to integrate inductively emergent themes into the coding framework.

Costs

Cost data was supplied by both delivery teams separately and is therefore presented separately in the Costs subsection of Section 5 of the report.

Timeline

Table 7: Timeline of key evaluation activity and Covid-19 related school school closures[9]

Dates	Activity	Staff responsible/ leading
October–December 2018	Development of MoU and information sheets	SHU
November 2018	Ethics application submission	SHU
January–June 2019	Recruitment period	OBT
January–June 2019	Baseline testing	SHU
April 2019	Randomisation one	SHU
June 2019	Randomisation two and three	SHU
February 2019	Protocol submitted (revisions have been made in subsequent years)	SHU
August 2019	Trial registration	SHU
September 2019	SAP submitted (revisions have been made in subsequent years)	SHU
September 2019–January 2020	OBT intervention took place in schools	OBT
September 2019–January 2020	CJs intervention took place in schools (one-week intervention per school)	CJs
September 2019–January 2020	Post-intervention testing (tailored based on when the school's intervention was)	SHU
September 2019–December 2019	IPE data collection period—observations	SHU
March 2020	First national lockdown—schools close	
June 2020	Schools reopen post first lockdown	
December 2020	Second national lockdown—schools initially remain open but close at the beginning of the Christmas holidays	
March 2021	Schools reopen post second lockdown	

[9] **https://www.instituteforgovernment.org.uk/sites/default/files/timeline-lockdown-web.pdf**

Dates	Activity	Staff responsible/ leading
November 2020–May 2021	P3 data collection (collected in the middle of the pandemic—hence protracted timeframe)	SHU
November 2020–June 2021	Further IPE data collection including virtual case study visits	SHU

Pre-randomisation and pre-delivery preparation phase

This section directly relates to RQs 7 and 8 as well as providing important wider contexts for all RQs. Understanding the different approaches schools employed to selecting students is crucial to interpreting impact data, which is based on a quite specific population of Year 8 students. Furthermore, given the lack of consensus on the casual mechanisms responsible for positive effects associated with adventure learning (see Section 1), it is important that we outline the varying extent to which schools engaged with intervention leads prior to the week of delivered activity and degree to which school staff made their own preparations with the participating students.

Pre-randomisation phase for all participants

Allocation to a particular arm of the trial (OBT, CJs, or control) occurred only after the SBL, headteacher, school-based administrator, and school governor had signed a MoU see Appendix B). In the MoU, all parties agreed to be randomised to one of the three arms of the trial. This meant that nobody knew what arm their school would be allocated to. Therefore, the pre-randomisation phase is discussed in relation to involvement in the trial as a whole (see flow diagram outlined in Figure 3).

Motivations for school and staff involvement

A baseline census survey of SBLs was undertaken pre-randomisation where all SBLs were asked to provide initial information on why their school was interested in taking part in the adventure learning trial. Open text responses were explored and the following categories of motivation to take part emerged:

- to increase attainment;
- subsidised activities;
- to generate evidence of intervention effect;
- raising the profile of sports subjects;
- to benefit Pupil Premium students;
- social and emotional learning; and
- be involved in research.

These motivations align with many of the short, medium, and long term goals of the interventions as outlined within their respective logic models (see Figures 1 and 2) as well as being largely consistent with the drivers and motivations for engagement that emerged from the qualitative data. SBLs were particularly keen to enable students to take part in an adventure learning experience (or significant enrichment activity) that they might not normally be able to access.

> *'I wanted to try and run some kind of Outward Bound visit previously and we were hindered by cost … we have a policy at school that any educational visit needs to be accessible to all' (SBL, Case D, OBT).*

Frequently, the students selected for participation in the trial had hitherto had very limited exposure to adventure learning activities or the countryside, even in areas where such environments were relatively easily accessible. Involvement in the trial was therefore a means to expose students to broader, more enriching life experiences, or to put it differently, to provide access to increased social and cultural capital many had seldom had the opportunity to engage with.

> *'The main aim was just to totally broaden their horizons, their experiences, go somewhere totally different that they've never been to before … a totally new experience that they'll remember for the rest of their life and that will have that impact on choices in the future that I wanted them to see' (Case A, SBL, OBT).*

Alignment of an existing school ethos to the goals of the interventions being delivered was a further motivator for involvement. For example, a long-standing commitment to enrichment and nurture-related activities outside of the core curriculum alongside a particular interest in adventure learning from school staff connected to the trial.

> *'[The trial] … fit quite centrally with a lot of beliefs and ideas that are sort of personal within the leadership team as well as the evidence to back it up … I've got a strong belief that there's merit in outdoor learning' (SBL 2, OBT).*

Facilitating staff connection with disengaged students

For others, involvement in the trial was an opportunity for staff to reconnect with disengaged students that had either become apathetic or openly hostile towards school, something that ultimately put them on a trajectory towards poor educational outcomes. Staff hoped engagement in the trial might afford the necessary space and combined with the novel activities, allow students and staff to re-engage with each other. In the longer term it was hoped improved relationships could be continued or further built upon when students returned to a more typical classroom environment.

> *'[We faced a] real lack of successful relationship-building between the most vulnerable students, anything other than just their hatred of school and their lack of understanding about why they were here and just wanting to not be here … You know, the kind of students that you could lose along the way if you don't go out of the way to kind of bring them in and reach out to them. And that was really sad … because once a kid turns off their results are catastrophically poor' (SBL, Case A, OBT).*

SBL and other staff involved

The SBL role was fulfilled by school-based staff with varied seniority, job titles, and responsibilities. Table 8 reveals SBLs were typically part of the senior leadership team (SLT) such as an assistant/vice/deputy headteacher (n = 39), head of year (n = 7), but rarely a headteacher (n = 4). Teaching staff (usually from the PE department), staff with wider pastoral responsibility for student inclusion as part of their role, and those with an interest in adventure learning-related activities (for example, running the Duke of Edinburgh's Award) or that valued enrichment activities in general (such as school trips or residentials) were also regularly appointed (n = 15).[10] There was generally a high buy-in and commitment among SBLs, most of whom were intrinsically motivated to assume the role despite often having a variety of other responsibilities.

Table 8: SBL role in school across all trial arms

Role	N
Head/principal	4
Assistant/vice principal	39
Head of year	7
Teacher and/or subject lead	20
SENCO	3
Pastoral roles	2
Other	19

Most SBLs had been thoughtfully and strategically appointed (many putting themselves forward), reflecting a connection to an existing school role, interest in adventure learning, or familiarity with students earmarked for the trial. The extent to which SBLs were familiar with the 24 students selected or perceived to have a good pre-existing relationship with them, depended in part on their specific role and the size of school itself. Table 9 shows that around a third of SBLs claimed to know selected students 'very well' (n = 27) but just under half felt they only knew them 'moderately well' (n = 46).

[10] Teacher, n = 12; teacher + research, n = 1, and teacher + progress manager, n = 3.

Table 9: How well SBLs felt they knew the students taking part in the trial, across all trial arms

	n
Extremely well	5
Very well	27
Moderately well	46
Slightly well	9
Not well at all	6
Missing	1

Selection criteria and process

The MoU, reflecting the research protocol, outlined certain eligibility criteria for involvement in the trial at the school and participant level. Only schools with at least 20% of their overall student profile entitled to Pupil Premium were able to apply. A further specific condition for the 24 Year 8 students selected was that at least half needed to be eligible for Pupil Premium or be identified as having an 'equivalent need for support'. Guidance also advised schools to prioritise students achieving below their expected levels of progress in terms of current attainment due to a lack of 'engagement' or 'character skills'.

Data from the qualitative interviews and FSM analysis (Section 3) suggests that these overarching selection principles were broadly adhered to. The focus on Pupil Premium students was universally observed, albeit to different extents depending on factors such as overall deprivation indices, size of school, and receptiveness of the offer to engage.

> *'The majority were from disadvantaged backgrounds' (geography teacher, Case L, OBT).*

Examples of approaches that schools employed to aid their decision making included:

- consultation with other school staff (for example, pastoral or inclusion staff, form tutors, heads of year, and Pupil Premium co-ordinators) and recommendations of students they felt may benefit from involvement in the trial;
- open opt-in invitation through an assembly or equivalent; and
- systematic collation of data (for example, attendance, behavioural points, Pupil Premium status, and attainment projections) using a spreadsheet or equivalent to help identify students to approach.

SBLs had autonomy to select those they perceived would get the most out of the trial. There was a tendency for students whose behaviour was seen to be too extreme to benefit from the interventions to be overlooked. The extent to which schools elected to communicate selection criteria to students and guardians varied. Some were deliberately vague or euphemistic, while others opted to be very transparent. Some staff hoped being open about their concerns might act as the 'jolt' required to arrest an existing trajectory towards poor outcomes. For others, it was more about using the trial as additional motivation and to show the school was still committed to supporting and investing in the students.

> *'It was based on behaviour and based on their attitude to learning in other subjects and that's why they were put forward to try and obviously encourage them to engage and to try and turn their behaviour around' (SBL, Case C, CJs).*

> *'I told them all the metrics that we used, and I said, look around you— [these are the students] we're most worried about in your year group and we want to do something about it, and this is why we're offering you this opportunity. I think it was quite a shock to them really … because we were giving them that brutal feedback, but at the same time saying we're going to try and help you' (SBL, Case A, OBT).*

Financial arrangements

School staff reported being extremely appreciative to the EEF for the level of financial support offered. In most cases, it was explicitly stated that without it, involvement in the trial would have been impossible, especially for the financially disadvantaged participants being targeted. This has wider implications for potential scale-up of adventure learning-

focused interventions both within and beyond the trial itself, particularly given the broader cost of living crisis that has since developed.

> *'They [school staff] said that if it wasn't subsidised it wouldn't have happened. For some of them it was like there is no way we will be able to afford this without subsidy ... There wasn't a school I talked to that were like, "Oh we could have paid for this, the students could have all afforded this"'* (Learning and Adventure Manager, OBT).

Despite a generous subsidy, the trial was not fully funded, and a condition of involvement was schools committing to making up a shortfall of 30%. For CJs, £600 overall (£25 per student) and for the OBT, £3,276 overall (£136.50 per student) plus transportation costs (which were further subsidised by the EEF up to £75 per student). It was left to individual schools to determine how they financed this. Usually, schools opted against requesting financial contributions from disadvantaged student's families, with most using ringfenced Pupil Premium budgets. Although, one school referenced a 'cross-subsidised' approach with Pupil Premium funding being augmented by donations from a local business.

Nevertheless, a sizeable minority did determine to ask for a monetary contribution towards either the CJs or the OBT intervention, ranging from between £10 and £200. OBT schools far more frequently requested a contribution (and one of a higher value to CJs) reflecting the higher overall costs involved in the intervention being run. Schools had different rationales for requesting such different amounts of parental contribution. Schools that requested monies towards the lower end of the scale appeared to be primarily motivated to increase buy-in to the programme and avoid previous experiences of students lacking commitment and withdrawing at the last moment without a valid reason.

> *'I always think it's good if there was some vested interest in it so what we did, we charged £20 per pupil basically so they felt that something was invested'* (SBL, Case K, OBT).

Financial contributions requested at the higher end of the scale were more likely to be because of a genuine perceived inability to cover the funding gap of the trial or unwillingness to use their Pupil Premium budget. Where schools did opt to charge higher amounts, there were various measures taken to try to ease possible burden upon families, including flexible payment plans and forms of two-tiered funding, for example, exempting Pupil Premium students but charging others. While fully understanding the challenging economic landscape facing many schools, it nevertheless felt uncomfortable to learn about such experiences, albeit relatively rare, that involved families were struggling to finance involvement or students were being denied the opportunity to engage on the grounds of cost. Therefore, were the EEF to recommission work connected to this trial or a similar intervention we would advise further consideration of the issue of cost to families.

Student characteristics of final sample

We now briefly examine the key student characteristics represented across participating schools. School leads usually intended there to be a 'balance' or a 'range' of characteristics among students selected to take part.

> *'Quite a lot of the students … were selected … because of their behaviour. So, we had … achievement points, behaviour points system where most of them have got … an excessive amount of points, which was why they were selected, and they've also been ones that tend to get in to trouble a lot around school' (SBL, Case C, CJs).*

> *'We had the whole spectrum really. So, some quite gifted boys in there but also some that really, really struggled. We even had some in there that have special educational needs, things like ADHD, ASD, EAL … Kids with social mixing issues and really struggle to get their point across and quite quiet and withdrawn … right to the other end of the spectrum with lads that we need to channel a little bit and point in the right direction' (SBL 9, OBT).*

Aside from the key prioritisation given to Pupil Premium eligibility, schools were principally driven by the MoU guidance to include students perceived to have the 'greatest scope for improvement' through an adventure learning intervention. However, it was clear that '**underachieving'** and **'disengaged' students were not a homogenous group,** with unfulfilled potential being attributed to a variety of factors. Generally, SBLs and other school staff described two distinct categorisations of 'underachieving' student: those we have interpreted to be **actively disengaged from school** and **passively disengaged from school** with many positioned between the two ends of the continuum. Below, drawing

upon data from interviews with SBLs and virtual case study visits, we attempt to draw out some of the key character traits associated with both categories.

Table 10: Key characteristics associated with the two categorisations of 'underachieving' student

Actively disengaged from school underachievers	**Passively disengaged from school underachievers**
More likely to be male.	More likely to be female.
Often over-confident, sometimes arrogant attitude. More likely to be popular with peers.	Often have low self-esteem and confidence; at a social level this might mean limited friendship groups and, within the classroom, a reluctance to engage.
Poor behaviour regularly reported, most commonly frequent low-level disruption but running through to more serious instances.	Overtly poor or confrontational behaviour was not common.
Students perceived to lack self-regulation and listening skills and be more likely to 'answer back' to teaching staff and be directly confrontational.	More likely to display an apathetic attitude towards their schooling, a lack resilience, and to become withdrawn.
Certain students might be part of sports teams or extra-curricular activity but others despite liking or excelling at such activities (outside of school) actively choose to not take part in anything school related.	Typically, this group of students would be reluctant to actively participate within class and be much less likely to take up extra-curricular activities and attend after-school clubs or sports teams.

Across the trial, more boys (52%) than girls (40%) were selected to take part (8% of the sample were missing gender information). There was also a high level of representation from students with wider socio-emotional, physical, or learning needs—for example, school refusers, Looked After Children (LAC), young carers, students with dyslexia, dyspraxia, eating disorders, and those with variable levels of physical fitness.

> *'Yeah. B-, she's a LAC pupil and she was going through it at the time as well, she'd only just moved from her parents … a few weeks before we did this, so she was in quite a vulnerable place really before we went' (SBL 7, OBT).*

However, there was a general **avoidance of selecting students with the very highest levels of perceived behavioural issues**. The reasons underpinning this stance were multifactorial, but included a combination of staff being unwilling to assume responsibility for such students (and their peers) in high risk environments, concerns about the potentially adverse effect their presence might have on the overall group dynamics—potentially sabotaging chances of overall success, not wishing to be seen to reward extremely poor behaviour, and, most pragmatically, a lack of conviction about their 'winnability' and likelihood to stay at school beyond the short term.

> *'By the time they get to Year 8 there are people on that list that were so poor that we didn't believe that they were still going to be in school when the trip happened, so it wasn't actually the worst students at all. It was actually the worst students that were also winnable students' (SBL, Case A, OBT).*

> *'We didn't choose any students on there that were high level, high tariff behaviour students ... so it wasn't a behaviour intervention … it was about investing in students and them knowing and feeling that we had invested in them. To support them to feel like the school was working with them and they belonged. It was about belonging' (SBL 3, OBT).*

Pre-delivery preparation phase

Following randomisation of each group to an arm of the trial, staff in schools had some time to prepare for their intervention activity. This preparation could generally be described as relatively light touch, although this was at least in part due to the relatively short amount of time between randomisation and undertaking the week-long intervention. Below we outline how preparation was undertaken across the respective two interventions and active control.

The Outward Bound Trust pre-delivery phase

Every school was assigned a course director who was responsible for running that school's week-long residential. Correspondence from the OBT was intended to facilitate a dialogue between the course director and school staff, to give the group a tailored programme with the best chance of benefitting them during the week itself and beyond. However, the extent to which school staff engaged in this process in advance of their visit was variable.

> *'The schools that really, really wanted to come to us had obviously done their pre-course stuff and had really bought in to it. With some schools, even though we sent out emails and we tried to ring the schools to say, "Look, we're going to be working with you, this is your course director, this is the kind of thing that we're going to be looking at", we would hear nothing from them until they turn up on the doorstep, which is really frustrating for us because we want to start that relationship before they come to us' (Senior Instructor, OBT).*

For the most part, the lack of engagement with OBT staff prior to the residential was due to limited capacity and the comparatively short window between randomisation and delivery.

> *'I think the timing of when it was … so early in the academic year … didn't really allow for us to have any of that team building stuff. Like I was still sorting who was going two weeks before we actually went, so there wasn't really a chance to get together and do any team building and different things like that, unfortunately. Yeah, the in-school side of what Outward Bound would like to happen, I found that quite challenging to implement just due to lack of time' (SBL, Case C, OBT).*

At a minimum, all schools appeared to have made at least some provision to meet with students or parents/guardians following randomisation and prior to the residential. Most frequently, this was achieved in the form of:

- school-based group meetings involving the SBL and/or other school staff;
- one to one meetings between students and school staff (although this was notably less frequently reported); and
- after-school meetings with parents/guardians; many schools also encouraged students to attend this.

These meetings, delivered by school staff, tended to use slightly repurposed OBT-based PowerPoints or other resources along with example itineraries to give a more detailed sense of what the week would likely entail. Student and parent/guardian meetings were usually purposely timed to be near each other to avoid any mixed messages or contradictions. The focus of these preparatory sessions was generally centred around the practicalities and logistics of the trip. Frequently referred-to items for discussion included 'packing lists', mobile phone usage policies, behavioural expectations (and the consequences if these were not met), catering arrangements (with opportunities to specify any food-related allergies, disorders, or food intolerances), and more unstructured time for question-and-answer sessions. One school referred to both parents and students being asked to sign an agreed 'code of conduct' in advance.

Direct engagement with parents/guardians, while attempted, was not always achieved. For example, one school reported only a 50% attendance rate at the parent/guardian preparation meeting. Where it was possible, though, it often appeared to be extremely valuable, especially as a means of **reassuring parents**, particularly those in financially disadvantaged circumstances. By reiterating that the programme was either fully or largely subsidised (depending on the school's particular approach) and that there was no expectation that families provide specialist equipment, it helped put parents at ease and more fully commit to encouraging their child to make the most of the opportunity.

> *'We had a parent meeting so that people could come in and ask any questions … they were repeatedly asking, "Are you sure there's no cost?!" And also things like—and I think it was a really important barrier to overcome—there was no specialist equipment requirement as well because I think sometimes that can be a bit of a, "Oh, I don't want to get involved in that because, yeah, it might be the cost of the trip or I might be able to get that far but then there's equipment on top of that, I'm better off holding back", and I think being able to say that upfront was, again, a sigh of relief really' (SBL 2, OBT).*

These meetings also helped build on existing school awareness of familial issues, particularly financial ones. For example, there were examples of schools discreetly sourcing essential items for the trip such as gloves and a winter coat.

> *'None of them have ever been on a holiday that cost that much! Like these are poor kids. Most of them don't go away at all. Half of them don't have a winter coat' (SBL 1, OBT).*

> *'In some cases, we had to buy some clothes … because they were out for at least a night—you know, hats, gloves, things like that' (SBL 6, OBT).*

A further overarching message frequently referred to during this preparation phase was the increased transparency about the level of challenge likely to be encountered throughout the week (for example, winter weather conditions, the level of physical challenge, and needing to be responsible for oneself). Staff were measured in how they went about this but seemed mindful to carefully convey that 'challenge' was not a universal concept and what might be uncomfortable for one student might not be for another and that, as a group, they should be respectful of each other's boundaries.

> *'It was saying, you're going to be taken out of your comfort zone and how not everything's going to be perfect and things like that. So, they were pretty much well warned what was going to happen' (SBL 7, OBT).*

It was on the back of these types of initial conversations that opportunities naturally arose to discuss the wider goals and aims of the programme both during and beyond the weeks residential. Here, students were introduced to some of the concepts underlying the logic model, such as the need for resilience, to be accountable for one's own decision making, independence, and teamwork. Inevitably schools that had factored in a more comprehensive preparatory phase had greater scope to get underneath some of these deeper discussions. For example, there was evidence of several schools distributing the OBT journal to students in advance of attending. To our knowledge, the OBT did not mandate when or how to engage with the journals after giving them to schools to use as a resource. As such, any decision to engage with them prior to the residential was made by the school. This appeared to work most effectively when there was time factored in for school staff to work with students on this; in such instances it became a powerful tool for eliciting discussion about goals for the week away itself and longer term personal aims thereafter.

> *'Yes, a journal. So, they met a couple of times to discuss what they wanted to get out of the trip, what they were expecting, just to make some pre-judgements on what they think they could get out of it and what their status was currently and then they were going to meet after the trip to compare pre and post' (SBL, Case F, OBT).*

Finally, although not routine, a minority of schools evidenced how they managed to meet as a group or on a one to one basis with students more frequently in the lead-up to the residential. This was said to have aided familiarity among the group and created a positive group dynamic ahead of the trip itself.

> *'As I say, it was more just to discuss what they wanted from it and also for us to get an idea of them individually because although we'd worked with them, we didn't know them brilliantly, so it was just to start to iron out anybody who we might need to keep an eye on, anybody doesn't work particularly well with other people. We did a few team building games of our own within school and actually the group worked out to be a superb group really' (SBL, Case K, OBT).*

Commando Joe's pre-delivery phase

Commando Joe's had a national operations director who managed the operation managers for the company. The operation manager oversaw the roll-out of the trial CJs programme in the schools. The operations manager liaised with the OBT who were responsible for the whole recruitment of schools to the trial and assigned the 32 schools CJs worked with for the trial. The CJs operations manager was responsible for day to day contact with each school. This contact was usually through the identified SBL and a key contact from the school's administrative staff to ensure effective liaison. The operations director ensured that appropriate CJs staffing was in place for each of the trial schools.

CJs sent out welcome packs detailing the intervention and schools were required to return an MoU (Appendix B) outlining CJs requirements for the delivery and who, for example, would be responsible for the trial from the school's perspective (the SBL). In the best examples, communication between CJs and the schools was regular and consistent:

> *'We had lots of contact from CJs in terms of trying to work out what was happening and who was going to be with us and so it was very well organised in that respect and really valued actually' (SBL 1, CJs).*

Schools were offered training for their staff teams prior to the delivery week but very low numbers of schools undertook the training offered by CJs either prior, during, or after the week of delivery. A feature of the pre-intervention phase, similar to that of many of the schools from the OBT arm of the trial, was that the timing of the intervention: often coming very soon after the summer break, for example, meant that there were considerable logistical challenges for school staff and the CJs staff to get parental permission, student engagement, and the 'set up' of the week negotiated and in place in the timely way that all parties would have wanted, but that was not the same in all schools:

> *'From what I remember they were brilliant in terms of their organisation; we had no concerns. Beforehand we were all set up, they communicated really well' (SBL 4, CJs).*

The CJs operational staff were keen to do some pre work with the schools to get on site, to see the school facilities, and negotiate access to appropriate indoor and outdoor space, however the challenging timescale of the roll-out of delivery, as alluded to above, and the individual school's circumstances meant that in many cases this was not possible, with many schools wanting this work to happen on the Monday morning of the actual week of delivery. This led in some cases to some logistical difficulties:

> *'That was quite a tricky one, really, because I think the initial information, we got given in terms of the logistics of it, I think that we might have got the wrong end of the stick in terms of what rooms or what space they needed in order to get it going. So, for instance they needed a headquarters room that's completely cordoned off for the rest of the week and I think that there was a misunderstanding in terms of we thought that might have been a moveable feast' (SBL 1, CJs).*

The CJs instructors who delivered the intervention in schools were experienced members of the CJs team and received some specific briefings prior to starting delivery to trial schools. This was largely because the delivery mode was different to their 'business as usual',[11] which was normally one day a week delivery over an extended period, typically a school term. However, the materials and CJs equipment used were still largely familiar to the CJs staff, albeit slightly revamped to allow for the delivery over an intense one-week period. Once schools had received the CJs welcome pack, staff then liaised with parents of the target group of students to let them know about the week. Schools found different ways of trying to promote the intervention to parents as they needed.

Students were invited to meetings set up by the schools to prepare them appropriately, and a key aspect of these meetings was to ensure they were appropriately dressed and prepared for the activities, many of which would be outside in the school grounds. School staff often showed a presentation package that was based on materials sent to them by CJs. School staff were typically careful to try and frame the intervention in a positive way, so students did not feel that they had been chosen because they were failing in some way. There were different levels of reported 'readiness' by the schools in terms of how prepared they felt their students were:

> *'I had a couple of meetings with them [the students] … trying to get them enthusiastic about it—make them feel a bit special in a positive way, but we didn't do any activities beforehand. Because to be honest, I wasn't exactly sure what they would be doing. We had to drill into them what they'd need to come with in terms of clothing and that sort of thing … So yeah, nothing really structured beforehand. I guess we spent a total of about an hour with them' (SBL 13, CJs).*

> *'We got them together in a classroom and we said, you know, this is what's going to be happening, you're very lucky to be part of this programme. I think they were more excited that they were going to be out of lessons and in their own*

[11] The CJ's programme was commissioned by the EEF as it provided an alternative model that could be compared with the OBT approach. The CJs implementation, however, differed in this trial from its usual practice. Prior to agreeing to this revised approach, meetings took place between the parties involved and the EEF to ensure all were in agreement.

clothes really! They weren't thrown into the lion's den if you like, they were very much prepared and they knew exactly what was going to happen and when and the reasons for this' (SBL 9, CJs).

Some schools chose to alert all their staff teams to let them know that the CJs intervention was happening in school, so all school staff had an awareness of the intervention (although the vast majority declined the invitation for wider whole-school training). In any case, the very visible nature of the intervention—usually taking place in the school hall and grounds for at least some of the week—meant that most members of the school staff were aware of the intervention at some point during the week, if not prior to the arrival of the CJs staff.

Control schools

Control schools were eligible for up to £1,500 as an incentive for facilitating data collection activities. Control schools were encouraged to use this funding for enrichment activities with students selected for the evaluation. The data collected to describe the control school condition was very limited, but what was available showed variation on what (or if) enrichment activities were run, this can be seen in Section 5 (RQ10, page 88). Given the context of Covid-19 and impact on schools, it seems likely that enrichment activities would be limited. We therefore cautiously assume that some control schools operated a business-as-usual approach (normal school lessons without enrichment activities) and some schools saw the pupils usual school experience enriched by activities funded through the incentive money (this is reported on in Section 5 re. RQ10, page 88).

Impact evaluation results

Participant flow including losses and exclusions

Figure 3: Participant flow diagram (three arms)

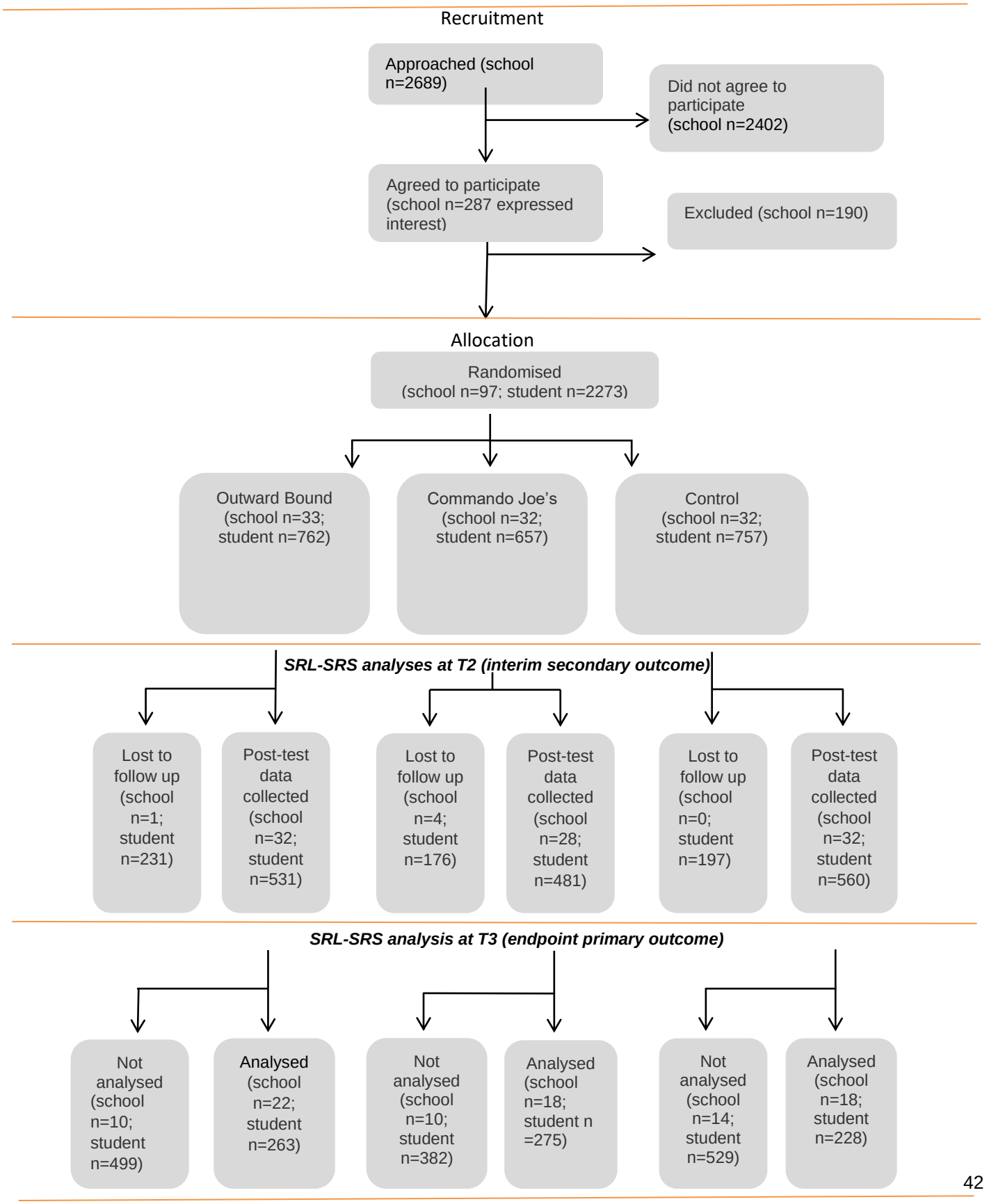


Table 11: Minimum detectable effect size (MDES) at different stages of the trial

		Protocol (99 schools)		Randomisation (97schools)		Analysis	
		Overall	FSM	Overall	FSM	Overall	FSM
MDES		0.21	0.25	0.22	0.25	0.27–0.30	0.32–0.35
Pre-test/post-test correlations	Level 1 (student)	0.50	0.50	0.50	0.50	0.53 / 0.47 *	0.53 / 0.47 *
	Level 3 (school)	0.25	0.25	0.25	0.25	0.84 / 0.70 *	0.84 / 0.70 *
Intracluster correlations (ICCs)	Level 3 (school)	0.05	0.05	0.05	0.05	0.11 / 0.07	0.11 / 0.07
Alpha (including Bonferroni correction)		0.025	0.025	0.025	0.025	0.025	0.025
Power		0.80	0.80	0.80	0.80	0.80	0.80
One-sided or two-sided?		Two	Two	Two	Two	Two	Two
Average cluster size							
Number of schools	OBT	33	33	33	33	22	22
	CJs	33	33	32	32	18	18
	Control	33	33	32	32	18	18
	Total:	99	99	97	97	58	58
Number of students	OBT	792 (24 per school)	396 (12 per school)	792 (24 per school)	396 (12 per school)	263 (12 per school)	164 (7.5 per school)
	CJs	792 (24 per school)	396 (12 per school)	768 (24 per school)	384 (12 per school)	275 (15.3 per school)	161 (8.9 per school)
	Control	792 (24 per school)	396 (12 per school)	768 (24 per school)	384 (12 per school)	228 (12.7 per school)	152 (8.4 per school)
	Total:	2376	1188	2328	1164	766	477

* These correlations relate to the two impact analyses: OBT versus control and CJs versus control.

At the protocol stage, the MDES estimates assume participation of 33 schools per trial arm (and therefore 66 schools in each OBT versus control and CJs versus control comparison) and 24 students per school (12 of whom classed as FSM). The school-level ICC for the T3 SRL-SRS outcome was estimated at 0.05 and the correlation between the baseline and T3 SRL-SRS estimated as 0.50 at the student level ($R^2_{StudentEst} = 0.25$) and 0.25 at the school level ($R^2_{SchEst} = 0.0625$).

The assumption was for a two-tailed test (that is, both negative and positive impact) with an Alpha of (p =) 0.05 but including a Bonferroni correction to account for the two comparisons (OBT versus control; CJs versus control) makes this 0.025 (0.0125 two tails) and Beta set at 0.20 (statistical power of 0.80 or higher). These estimates resulted in MDES estimates of 0.21 SDs for the ITT sample and 0.25 SDs for the FSM subsample.

At the randomisation stage, the only changes relate to the number of schools (65 for the OBT versus control analyses; 64 for the CJs versus control analyses) with the other assumptions remaining as specified above for the protocol stage. The slightly smaller sample leads to a slightly higher MDES estimate for the ITT sample of 0.22 SDs with the MDES estimate for the FSM subsample remaining at 0.25 SDs.

At the analysis stage, the estimates are based on what was empirically observed in the impact analyses for the two comparisons. Please note that the MDES estimates for the analysis stage are indicative such that they represent the prospective sensitivity for a trial with the specified sample sizes, school ICC values, and covariate explanatory power. In reality, the sample sizes and estimates at the analysis stage are a result of the notable attrition that this evaluation experienced for the T3 SRL-SRS primary outcome (65% attrition overall, see Table 12).

For the OBT versus control comparison, school-level ICC was observed to be 0.11 and the correlations to be 0.53 (student) and 0.84 (school) with 40 of the randomised 65 schools and 491 of the original 1,560 students; the indicative MDES estimate is 0.29 SDs for the ITT analyses and 0.34 SDs for the FSM subsample analyses.

For the CJs versus control comparison, school-level ICC was observed to be 0.07 and the correlations to be 0.47 (student) and 0.70 (school) with 36 of the randomised 64 schools and 503 of the original 1,536 students; the indicative MDES estimate is 0.32 SDs for the ITT analyses and 0.37 SDs for the FSM subsample analyses.

Attrition

Table 12: Student-level attrition from the trial (primary outcome) by trial arm

SRL-SRS	Randomisation to T3	Outward Bound	Commando Joe's	Control	Total
Number of students	Randomised	762	657	757	2176
	Analysed (SRL-SRS T2)	531	481	560	1572
	Analysed (SRL-SRS T3)	263	275	228	766
% Attrition	Analysed (SRL-SRS T2)	30.3	26.8	26.0	27.8
	Analysed (SRL-SRS T3)	65.5	58.1	69.9	64.8

Student and school characteristics

Table 13 presents descriptive statistics on the participating schools. Schools are split between each trial arm to allow visual comparisons.

School-level percentage of free school meal (FSM) students was similar for OBT and CJs but slightly lower for control schools. OBT schools had a higher percentage of students with special educational needs (SEN) and for whom English was an additional language (EAL). Average Attainment 8 was also comparable across trial arms, with control schools having slightly higher mean Attainment 8 scores for all students and the FSM subsample than OBT and CJs schools.

Table 13 also shows that the mean SRL-SRS baseline test score was slightly higher among students in OBT and CJs schools than control schools with an effect size of +0.14 and +0.11 respectively. This is not, however, seen as a problem

as it is the result of random allocation, and the baseline measure is included as a covariate in the headline ITT analysis models.

Table 13: Baseline characteristics of groups as randomised, by trial arm

School level (categorical)		Outward Bound		Commando Joe's		Control group		
		Baseline						
		n/N (missing)	Count (%)	n/N (missing)	Count (%)	n/N (missing)	Count (%)	
Outstanding		49	6.4	48	7.3	72	9.5	
Good		478	62.7	418	63.6	448	59.2	
Requires improvement		167	21.9	167	25.4	165	21.8	
Inadequate		44	5.8	0	0.0	48	6.3	
Missing		24	3.1	24	3.7	24	3.2	
School level (continuous)		n/N (missing)	Mean (SD)	n/N (missing)	Mean (SD)	n/N (missing)	Mean (SD)	
% FSM		762/762 (0)	34.9 (11.02)	657/657 (0)	34.9 (14.77)	757/757 (0)	32.4 (10.31)	
% SEN		762/762 (0)	14.3 (8.62)	657/657 (0)	12.3 (6.62)	757/757 (0)	13.7 (6.89)	
% EAL		762/762 (0)	18.9 (20.44)	657/657 (0)	16.2 (22.00)	757/757 (0)	15.8 (19.01)	
KS2 APS for KS4 student cohort		739/762 (23)	27.8 (1.14)	657/657 (0)	27.8 (1.07)	757/757 (0)	27.9 (0.90)	
Average attainment 8 student		739/762 (23)	42.4 (5.39)	657/657 (0)	43.0 (4.75)	757/757 (0)	44.0 (5.12)	
Average attainment 8 FSM student		739/762 (23)	36.2 (5.55)	657/657 (0)	36.9 (3.96)	757/757 (0)	37.1 (5.28)	
Student level (continuous)		n/N (missing)	Mean (SD)	n/N (missing)	Mean (SD)	n/N (missing)	Mean (SD)	Effect size
Baseline SRL-SRS	OBT v control	736/762 (26)	17.7 (3.65)	-	-	741/757 (16)	17.2 (3.70)	+0.14
Baseline SRL-SRS	CJs v control	-	-	641/657 (16)	17.6 (3.67)	741/757 (16)	17.2 (3.70)	+0.11
Baseline SEI	OBT v control	734/762 (28)	2.1 (0.58)	-	-	738/757 (19)	2.2 (0.61)	-0.13
Baseline SEI	CJs v control	-	-	631/657 (26)	2.2 (0.58)	738/757 (19)	2.2 (0.61)	-0.07
Baseline SDQ	OBT v control	713/762 (49)	10.0 (6.78)	-	-	683/757 (74)	10.2 (7.34)	-0.02
Baseline SDQ	CJs v control	-	-	600/657 (57)	9.8 (6.82)	683/757 (74)	10.2 (7.34)	-0.05

Outcomes and analysis

Histograms for self-regulation of learning at T2 and T3

Histograms are presented for the primary outcome of self-regulation of learning (SRL-SRS) at T2 and T3. Descriptive statistics (for all variables) and histograms for secondary/exploratory analyses can be found in Appendix G.

Figure 4: Histograms outlining self-regulation of learning at T2

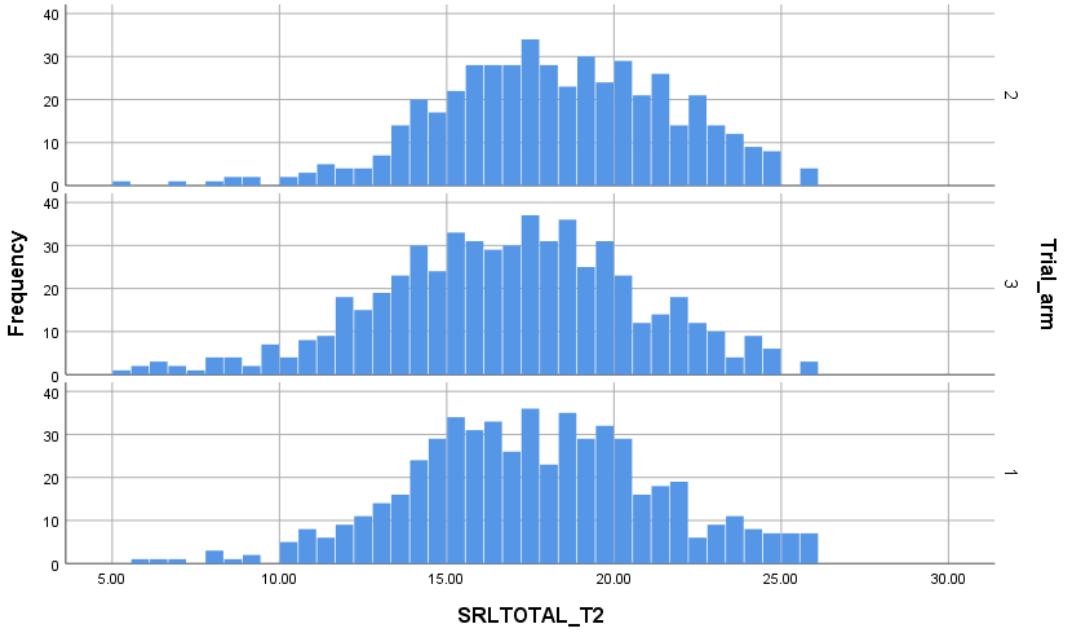
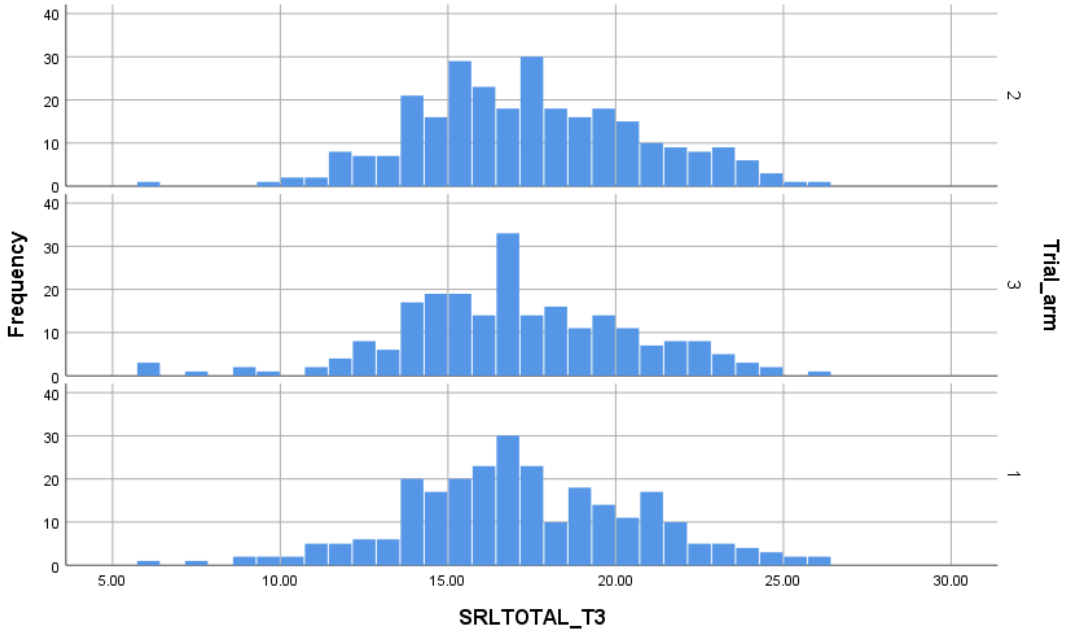


Figure 5: Histograms outlining self-regulation of learning at T3



Figures 4 and 5 demonstrate a relatively normal distribution for self-regulation of learning total scores across all trial arms and for each timepoint.

ITT analysis of primary outcome—SRL-SRS at T3

Table 14 reports the findings for the Intention to Treat (ITT) analysis of the primary outcome measure self-regulation of learning scale (Toering, 2012) at timepoint three (T3). When compared with the control group, no significant effect was found for Outward Bound (ES = +0.03, 97.5% CI: -0.20; +0.25) or Commando Joe's (ES = +0.08, 97.5% CI: -0.15; +0.31). We would therefore conclude that no evidence was found that the OBT or CJs adventure learning activities had an impact on self-regulation of learning scores at T3. See Appendix G for effect size estimation.

When comparing the OBT and CJs provision directly, there was a small but not statistically significant difference in impact between the groups (ES: -0.05, 95% CI: -0.23; -0.23). We would therefore conclude that there was no evidence of a difference in the effect on self-regulation of learning between the two deliverers at T3.

Table 14: ITT analysis of primary outcome— Self-Regulation of Learning Scale (SRL-SRS) at T3

	Unadjusted means				Effect size		
	Intervention group		Control group				
Outcome	n (missing)	Mean (97.5% or 95% CI)	n (missing)	Mean (97.5% or 95% CI)	Total n (intervention; control)	Hedges g (97.5% or 95% CI) *	p-value
SRL-SRS, T3, OBT v control	263 (489)	17.24 (97.5% CI: 16.82; 17.67)	228 (524)	17.03 (97.5% CI: 16.58; 17.49)	491 (263, 228)	+0.03 (97.5% CI: -0.20; +0.25)	0.78
SRL-SRS, T3, CJs v control	275 (368)	17.41 (97.5% CI: 17.01; 17.80)	228 (524)	17.03 (97.5% CI 16.58; 17.49)	503 (275, 228)	+0.08 (97.5% CI: -0.15; +0.31)	0.42
SRL-SRS, T3, OB v CJs	263 (489)	17.24 (95% CI: 16.82; 17.67)	275 (368)	17.41 (95% CI 17.01;17.80)	538 (263, 275)	-0.05 (95% CI: -0.23; +0.13)	0.59

* This trial had three arms—OBT, CJs, and control—and was powered to detect an impact on this T3 SRL-SRS primary outcome for both the OBT and CJs interventions compared with the control. Therefore, the trial is powered for two comparisons (OBT versus control and CJs versus control). To acknowledge multiple comparisons and avoid inflating the probability of a type I error, a Bonferroni correction was used within the power analyses for the sample size estimates (see Table 11) and is also applied here for the specified two comparisons. The Bonferroni correction results in dividing the p-value (0.05) by the number of specified comparisons (two comparisons). This means that for the OBT versus control and CJs versus control analyses above, a p-value of 0.025 is used and subsequently, for these two comparisons, the 95% CI is actually a 97.5% CI. The Bonferroni correction was not applied for any other analyses.

While the ITT analyses of the specified primary outcome (T3 SRL-SRS) represent the most robust analyses for assessing the causal impact of OBT and CJs, the extent of missing data at T3 (65% OBT; 57% CJs; 70% control) means that the findings from these ITT analyses need to be treated with notable caution. As detailed in the updated SAP, following the arrival of Covid-19, the T3 outcomes were collected later than planned over a protracted period and in multiple settings (within school and outside school). This additional flexibility was needed to try to maximise participation during a very difficult time for schools, students, and everyone but clearly was less than ideal. We attempted to address the problem of attrition through multiple imputation (reported below) and have undertaken additional sensitivity analyses (also reported below) to examine whether the protracted timescale and multiple locations resulted in introducing statistical bias (for example, whether scores collected up to December 2020 prior to the second period of partial school closures were systematically different compared with scores collected following the reopening of schools in March 2021). This said, the impact of the Covid-19 pandemic on our ITT analyses—that attempt to measure the causal impact of OBT and CJs on Self-Regulation of Learning at T3—is profound and serves to undermine the validity of drawing reliable conclusions about the impact of OBT and CJs on self-regulated learning.

The SRL outcome was also collected as a secondary interim outcome at T2, immediately after the conclusion of the programmes but before the arrival of Covid-19. While still reasonably high, this interim (T2) outcome did not suffer the same extent of missing data (30% OBT; 27% CJs; 26% control) that was seen at T3 and the findings of the analyses of SRL at T2 can be found in the following section.

ITT analyses of secondary outcomes

Analyses of nine secondary outcomes are reported in this section. First, Table 15 details the findings from secondary analyses on the SRL-SRS at timepoint two (T2, immediately post-intervention). Following this, analyses of the Student Engagement Instrument (SEI; Appleton et al., 2006) at T2 and T3 and the teacher version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) at T3 are reported. Further exploratory analyses of the five SDQ subscales are summarised at the end of the impact evaluation analyses.

ITT analysis SRL-SRS data at T2

At T2, the ITT analyses of the SRL-SRS data found a statistically significant positive impact for both the OBT programme (ES = +0.16, 95% CI: +0.01; +0.31) and even more so for CJs programme (ES = +0.33, 95% CI: +0.17; +0.48) when compared with the control group. When compared directly, the impact of the former was found to be statistically significantly lower than that observed for CJs (ES = -0.17, 95% CI: -0.33; -0.01).

Table 15: ITT analysis of the secondary outcome—Self-Regulation of Learning Scale (SRL-SRS) at T2

	Unadjusted means				Effect size		
	Intervention group		Control group				
Outcome	n (missing)	Mean (95% CI)	n (missing)	Mean (95% CI)	Total n (intervention; control)	Hedges g (95% CI)	p-value
SRL-SRS, T2, OBT v control	531 (231)	17.59 (17.27; 17.90)	560 (197)	16.84 (16.52; 17.14)	1091 (531, 560)	+0.16 (+0.01; +0.30)	0.04
SRL-SRS, T2, CJs v control	481 (176)	18.22 (17.91; 18.52)	560 (197)	16.84 (16.52; 17.15)	1041 (481, 560)	+0.33 (+0.17; +0.48)	<0.01
SRL-SRS, T2, OBT v CJs	531 (231)	17.59 (17.27; 17.90)	481 (176)	18.22 (17.91; 18.52)	1012 (531, 481)	-0.17 (-0.33; -0.01)	0.04

As previously detailed, data collected at T2 was unaffected by the Covid-19 pandemic and therefore does not face the extent of attrition as at T3. However, attrition at T2 was still notable (30% OBT; 27% CJs; 26% control) and so caution is needed in terms of interpreting findings. The (cautious) finding of a positive effect for both OBT and CJs on self-regulation of learning adds to the body of evidence that has illustrated the potential for outdoor learning to develop non-cognitive skills. However, as identified by Marsh et al. (1986), immediate post intervention assessments can suffer from artificial inflation because of 'post-group euphoria'. In this trial, to try to avoid this, post intervention data was not collected on the last day of the intervention but in the two weeks (approximately) following the intervention, back in the school setting.

ITT analyses of student engagement using the Student Engagement Instrument at longitudinal follow-up (T3) and interim (T2) timepoints

At T3, the ITT analyses of the Student Engagement Instrument (SEI) found a statistically significant positive impact for both the OBT (ES = +0.22, 95% CI: +0.00; +0.43) and CJs (ES = +0.21, 95% CI: +0.002; +0.43) when compared with

the control group. When compared directly, there was no observed difference in the impact of OBT and CJs (ES = -0.01, 95% CI: -0.20; +0.18).

Table 16: ITT analysis of the secondary outcome—Student Engagement Instrument at T3

	Unadjusted means				Effect size		
	Intervention group		Control group				
Outcome	n (missing)	Mean (95% CI)	n (missing)	Mean (95% CI)	Total n (intervention; control)	Hedges g (95% CI)	p-value
SEI, T3, OBT v control	258 (504)	3.69 (3.63; 3.76)	227 (530)	3.53 (3.46; 3.61)	485 (258, 227)	+0.22 (0.00; +0.43)	0.048
SEI, T3, CJs v control	272 (385)	3.69 (3.63; 3.76)	227 (531)	3.53 (3.46; 3.61)	499 (272, 227)	+0.21 (0.00; +0.43)	0.047
SEI, T3, OBT v CJs	258 (504)	3.69 (3.63; 3.76)	272 (385)	3.69 (3.63; 3.76)	530 (258, 272)	-0.01 (-0.20; +0.18)	0.90

At T2, the ITT analyses of the SEI found a positive impact for OBT (ES = +0.13, 95% CI: -0.03; +0.28) when compared to the control group, however, this did not reach statistical significance with a p-value of 0.11. A larger and statistically significant positive impact was found for CJs (ES = +0.19, 95% CI: +0.03; +0.36) when compared with the control group. When compared directly, the observed difference in the impact of OBT and CJs was small and not statistically significant (ES = -0.06, 95% CI: -0.20; +0.07; p-value: 0.36).

Table 17: ITT analysis of the secondary outcome—Student Engagement Instrument at T2

	Unadjusted means				Effect size		
	Intervention group		Control group				
Outcome	n (missing)	Mean (95% CI)	n (missing)	Mean (95% CI)	Total n (intervention; control)	Hedges g (95% CI)	p-value
SEI, T2, OBT	531 (231)	3.75 (3.70; 3.80)	552 (205)	3.64 (3.59; 3.69)	1083 (531, 552)	+0.13 (-0.03; +0.28)	0.11
SEI, T2, CJs	473 (184)	3.78 (3.73; 3.84)	552 (205)	3.64 (3.59; 3.69)	1025 (473, 552)	+0.19 (+0.03; +0.36)	0.02
SEI, T2, OBT v CJs	531 (231)	3.75 (3.70; 3.80)	473 (184)	3.78 (3.73; 3.84)	1004 (531, 473)	-0.06 (-0.20; +0.07)	0.36

The findings on the SEI detailed above suggest that both programmes had a positive impact on students' engagement when compared to controls at T3—and CJs also at T2. The observed positive impact was statistically significant for CJs for both timepoints. For the OBT, a statistically significant impact was only observed at T3; at T2, the observed impact of the OBT on SEI was positive but did not reach statistical significance. As with the T3 SRL-SRS primary outcome, the T3 SEI suffered from notable attrition (65% overall) and so caution is needed when interpreting the significant and

positive findings of impact on SEI at T3. However, at T2, attrition in SEI was lower (29% overall) and a positive impact on SEI at T2 was observed for both (although, for OBT, this was not statistically significant).

With the SEI outcomes we observed evidence that CJs and the OBT had a positive impact at both T2 and T3. The problem of attrition requires that these findings be cautiously interpreted but it is worth noting the consistent patterns at both interim (T2) and end (T3) points. Further, the observed pattern seems to fit with a theory that the impact of the programmes on SEI increases with time. We feel that if such patterns were seen within a more complete dataset, they would represent strong evidence of a positive causal impact for both the OBT and CJs interventions on student engagement (as measured by the SEI). The attrition caused by Covid-19 serves to undermine the strength of this evidence, but the findings do provide evidence of promise.

ITT analyses—Strengths and Difficulties Questionnaire at longitudinal follow-up (T3)

Table 18 presents the ITT analyses for the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001) at timepoint three (T3). For the SDQ total score, a reduction in score over time represents an improvement in behaviour. For the prosocial scale, an increase in score represents an improvement in prosocial behaviours.

At T3, the ITT analyses of the SDQ found a statistically significant positive impact for OB (ES: -0.38, 95% CI: -0.68; +0.08) and CJs even more so (ES: -0.48, 95% CI: -0.80; +0.07) when compared to the control group. When compared directly, there was no statistically significant difference in the impact of OBT and CJs (ES = +0.16, 95% CI: -0.09; +0.42).

Table 18: ITT analysis of the secondary outcome—Strengths and Difficulties Questionaire at T3

	Unadjusted means				Effect size		
	Intervention group		Control group				
Outcome	n (missing)	Mean (95% CI)	n (missing)	Mean (95% CI)	Total n (intervention; control)	Hedges g (95% CI)	p-value
SDQ total, OBT v control	180 (582)	7.78 (6.97; 8.59)	157 (600)	10.75 (9.64; 11.86)	337 (180, 157)	-0.38 (-0.68; -0.08)	0.012
SDQ total, CJs v control	110 (547)	6.95 (5.77; 8.12)	157 (600)	10.75 (9.64; 11.86)	267 (110, 157)	-0.48 (-0.80; -0.17)	0.003
SDQ total, OBT v CJs	180 (582)	7.78 (6.97; 8.59)	110(547)	6.95 (5.77; 8.12)	267 (180, 110)	+0.16 (-0.09; +0.42)	0.21

The findings on the SDQ summarised above suggest that both interventions had a statistically significant positive impact on student behaviour when compared to controls at T3. The SDQ measurements suffered from the highest attrition (80% overall) of all outcomes collected at T3 (65% overall for both SRL-SRS and SEI) and so even greater caution is needed when interpreting the significance of the positive findings of impact from the SDQ at T3. An interim (T2) SDQ measure was not collected but exploratory analyses of the SDQ subscales of the T3 outcome are briefly summarised at the end of the impact evaluation.

Subgroup analyses—Self-Regulation of Learning - Self-Report Scale at T3 and T2

Subgroup analysis was conducted for FSM students within the ITT sample, but it is important to note that this trial was not powered to detect an effect on the FSM subgroup as the primary population of interest. As could be expected, given

the inclusion criteria for the adventure learning trial, a large proportion of the sample were classed as FSM using the FSMEVER_6 identifier from the NPD (61% at randomisation, 62% at T2, and 80% at T3).

Table 19 reports the findings for the Intention to Treat (ITT) FSM subgroup analysis of the primary outcome measure—the Self-Regulation of Learning scale (Toering, 2012)—at timepoint three (T3), longitudinal follow-up. When compared with the control group, no significant effect was found for the OBT (ES: -0.02, 95% CI: -0.24; 0.21) or CJs (ES: +0.07, 95% CI: -0.14; 0.29). We would, therefore, conclude that no evidence was found that the OBT or CJs adventure learning activities had an impact on self-regulation of learning scores for FSM students at T3.

When comparing the OBT and CJs provision directly, there was no difference in impact between the groups (ES: -0.09, 95% CI: -0.31; 0.13). We would, therefore, conclude that there was no difference in the effect on self-regulation of learning between the two deliverers at T3 for the FSM subsample.

Table 19: ITT analysis for FSM cases at T3—Self-Regulation of Learning - Self-Report Scale

	Unadjusted means				Effect size		
	Intervention group		Control group				
Outcome	n (missing)	Mean (95% CI)	n (missing)	Mean (95% CI)	Total n (intervention; control)	Hedges g (95% CI)	p-value
SRL-SRS at T3, OBT v control	164 (281)	17.07 (16.52; 17.62)	152 (323)	17.00 (16.43; 17.57)	316 (164, 152)	-0.02 (-0.24; +0.21)	0.89
SRL-SRS at T3, CJs v control	161 (241)	17.33 (16.81; 17.85)	152 (323)	17.00 (16.43; 17.57)	313 (161, 152)	+0.07 (-0.14; +0.29)	0.50
SRL-SRS at T3, OBT v CJs	164 (281)	17.07 (16.52; 17.52)	161 (241)	17.33 (16.81; 17.85)	325 (164, 161)	-0.09 (-0.31; +0.13)	0.41

As detailed in the main ITT analysis, self-regulation of learning at T3 suffered significant attrition, partly due to the disruptions created by the Covid-19 pandemic. While the ITT analyses represents the most robust analyses for assessing the causal impact of the interventions, the extent of missing data means that the findings from these subsample ITT analyses need to be treated with caution.

Table 20 reports the findings of the ITT FSM subgroup analysis of the primary outcome measure, the Self-Regulation of Learning scale, at timepoint two (T2)—immediately post intervention. When compared with the control group, no significant effect was found for the OBT (ES: +0.11, 95% CI: -0.06; +0.29). However, a statistically significant and positive impact was observed for CJs (ES: +0.27, 95% CI: +0.10; +0.44).

In summary, the FSM subsample impact analyses reflected the main ITT analyses of SRL-SRS: no statistically significant impact was observed at T3 for either the OBT or the CJs programme when compared with the control but, at T2, a positive impact was observed for both, but this was only observed to be statistically significant for CJs programme.

When comparing the OBT and CJs provision directly, there was no difference in impact between the groups (ES: -0.16, 95% CI: -0.34; 0.01). We therefore conclude that there was no difference in the effect on self-regulation of learning between the two deliverers at T3 for the FSM subsample.

Table 20: ITT analysis for FSM cases at T2—Self-Regulation of Learning - Self-Report Scale

	Unadjusted means				Effect size		
	Intervention group		Control group				
Outcome	n (missing)	Mean (95% CI)	n (missing)	Mean (95% CI)	Total n (intervention; control)	Hedges g (95% CI)	p-value
SRL-SRS at T2, OBT v control	305 (140)	17.62 (17.22; 18.01)	353 (122)	16.84 (16.45; 17.23)	658 (305, 353)	+0.11 (-0.06; +0.29)	0.20
SRL-SRS at T2, CJs v control	299 (103)	18.14 (17.74; 18.54)	353 (122)	16.84 (16.45; 17.23)	652 (299, 353)	+0.27 (+0.10; +0.44)	<0.01
SRL-SRS at T2, OBT v CJs	305 (140)	17.62 (17.22; 18.01)	299 (103)	18.14 (17.74; 18.54)	604 (305, 299)	-0.16 (-0.34; +0.01)	0.07

Analysis in the presence of non-compliance

The purpose of the Compliers Average Causal Effect (CACE) analyses was to estimate the impact of OBT and CJs for students deemed to have 'complied' with the intervention during the delivery period— to have attended three of the five intervention days. Compliance was assessed at the student level. This information was collected by the school and deliverers using a register supplied by SHU. This ensured that information on compliance was collected consistently between different schools, delivery staff, and for each intervention.

Using this information, a binary variable was created for each student in both intervention groups. This allowed comparison of compliance between groups. The follow-on CACE analyses were done twice, first for the OBT and then for CJs. The CACE analyses were done using complete cases (listwise deletion of missing values).

The SAP specified that a two-stage least squares (2SLS) instrumental variable regression approach would be adopted for the CACE analyses (Gerber and Green, 2012). A 2SLS approach assumes that the compliance variable is endogenous such that it will be correlated with the error term of the final model of the ITT analysis for the primary outcome. An endogenous variable breaks assumptions of ordinary least squares regressions, which is why the two-stage instrumental variable approach is needed. The analysis undertaken diverged slightly from what was specified in the SAP with the inclusion of the Wu-Hausman test[12] to examine the assumption that compliance to OBT/CJs was an endogenous variable.

A statistically significant Wu-Hausman test would support the assumption that compliance to OBT/CJs was endogenous, and here the CACE analysis for each intervention would be estimated using 2SLS regression (Gerber and Green, 2012) as specified in the SAP using the 'STATA IVRegress'. A non-significant Wu-Hausman test would support the assumption that compliance was exogenous and therefore a 2SLS instrumental variable approach is not needed. Here, CACE would be estimated by replacing the group identifier in the final headline ITT analyses of the T3 SRL-SRS primary outcome with the compliance binary variable using a standard three-level multilevel regression model.

[12] See **https://www.stata.com/manuals/rivregresspostestimation.pdf**

Compliance with OBT and CJs programmes

Compliance data was collected in 29 of the 32 OBT schools (90.6%) and in 24 of the 28 CJs schools (85.7%). In the 29 OBT schools with some compliance data, this was collected for 687 of the 689 OBT ITT students (99.7%) and in the 24 CJs schools with some compliance data, this was collected for 562 of the 563 CJs ITT students (99.8%).

Compliance was high for both interventions but highest for CJs (84.0%) compared with OBT (70.3%). Across schools, compliance was more consistent for CJs compared with OBT. This is illustrated in a few ways in the summary tables below. Variation in compliance between schools was observed to be greater for OBT (standard deviation of 15.52 percentage points around the 70.3% mean) compared with CJs (SD: 10.94 pp). A compliance rate of 90% or higher was observed in seven CJs schools (29%) compared with four OBT schools (14%); 87% of CJs schools had a student compliance rate of 75% or higher while this was the case for only 42% of OBT schools.

Table 21: Compliance with OBT and CJs programmes

	OBT	CJs
Schools with compliance data (missing)	29 (3)	24 (4)
School-level mean student compliance (SD)	70.3% (15.52 pp)	83.8% (10.94pp)
Categorised school-level mean student compliance:		
90%+	4 (14%)	7 (29%)
75% to <90%	8 (28%)	14 (58%)
50% to <75%	16 (55%)	3 (13%)
<50%	1 (3%)	0 (0%)
Students with compliance data (missing)	687 (75)	562 (95)
Student level % compliance	70.3%	84.0%

Impact analysis in the presence of non-compliance—T3 SRL-SRS primary outcome

The STATA 'IVRegress' command was used to first examine the assumption that compliance was an endogenous variable using the Wu–Hausman test. If compliance was found to be endogenous, a two-stage least squares (2SLS) would be required to estimate the Compliers Average Causal Effect (CACE) to avoid breaking a key assumption of standard least squares regression. This was done twice: first for OBT and then for CJs, and in both cases the Wu-Hausman test was not statistically significant.[13]

We therefore conclude that there was no evidence that compliance to either programme was endogenous and therefore did not proceed with a 2SLS approach to estimate CACE in either. We proceeded with the assumption that compliance to both was exogenous, and CACE was estimated by replacing the group identifier with the complier variable[14] within the multilevel analyses. This is reported in Table 22 below.

[13] For the OBT, when clustering at the school level was acknowledged, the F-test value for the Wu-Hausman was 0.635 with 1,37 df (p = 0.43). For CJs, when clustering at the school level was acknowledged, the F-test value for the Wu-Hausman was 2.040 with 1,35 df (p = 0.16).
[14] Specifically, the group identifier becomes 1 = compliant students in OBT/CJs intervention; 0 = control students. When OBT and CJs were compared directly: 1 = compliant OBT students; 0 = compliant CJs students.

The CACE estimate was observed to be positive but small for both programmes—OBT: +0.09 SDs; CJs: +0.06 SDs—and neither was statistically significantly different from zero (p = 0.38 for OBT, p = 0.56 for CJs). When the two interventions are compared directly, the CACE estimate is very small (+0.04 SDs) and not statistically significant (p = 0.67).

We therefore conclude that no evidence was found that either programme had a positive impact on self-regulation of learning at T3, even for students identified as 'compliant'.

Table 22: CACE estimates at T3

	Unadjusted means				Effect size		
	Intervention group		Control group				
SRL-SRS at T3	n (missing)	Mean (95% CI)	n (missing)	Mean (95% CI)	Total n (intervention; control)	Hedges g (95% CI)	p-value
OBT v control	200 (283)	17.7 (17.2; 18.2)	228 (529)	17.0 (16.6; 17.5)	428 (200, 228)	+0.09 (-0.11; +0.29)	0.375
CJs v control	257 (215)	17.4 (17.0; 17.8)	228 (529)	17.0 (16.6; 17.5)	485 (257, 228)	+0.06 (-0.14; +0.27)	0.562
OBT v CJs	200 (283)	17.7 (17.2; 18.2)	257 (215)	17.4 (17.0; 17.8)	457 (200, 257)	+0.04 (-0.14; +0.22)	0.674

Similar CACE analyses were undertaken for the SRL secondary outcome at T2. These were not specified in the SAP and so undertaken as additional exploratory analyses and summarised rather than presented here. As with the T3 SRL findings, the T2 SRL CACE analyses did not contradict the ITT findings that showed a statistically significant positive impact on SRL at T2 for both CJs and OBT. When compared directly, the impact on SRL at T2 was statistically significantly larger for CJs compared with OBT.

Missing primary outcome—Self-Regulation of Learning - Self-Report Scale—data analysis

Of the 2,176 students in the ITT sample across the three trial arms, 1,410 (64.8%) were missing from the analysis of the T3 SRL-SRS primary outcome. Most missing data stemmed from missing T3 data (1,404 missing cases) but a further six cases had T3 data but missing baseline (T1) data and there were 52 cases that had both T1 and T3 SRL-SRS data missing.

Of the missing students, 792 were in one of the 34 schools where no T3 SRL-SRS data was collected. The remaining 618 missing cases were spread across the 58 schools where some T3 data was collected (the percentage attrition across these 58 schools was 44.7%: lower than 64.8% but still notable).

The 34 schools where no T3 data was collected were spread across the three arms—OBT, 10; CJs, 10; control, 14—with overall student-level attrition ranging between 58.1% (CJs) and 69.9% (control). Across the 58 schools with some T3 data, the school-level attrition ranged between 8.3% and 95.7%. Across the three arms, a similar school-level variation in attrition was observed: for the 22 OBT schools, attrition ranged from 12.5% to 95.7%; for the 18 CJs schools it was 12.5% to 91.7%; and for the 18 control schools it was 8.3% to 95.8% where some T3 SRL-SRS data was collected.

From the multilevel logistic regression model (presented in Appendix H), with missing ('1') and not missing ('0') as the outcome variable, two school-level and two student-level variables were identified as statistically significant. At the school level, Ofsted rating and the mean KS2 Average Points Score were identified as statistically significant. In terms of Ofsted ratings, higher attrition was found in schools classed as 'inadequate' and lower attrition in schools classed as

'outstanding'. In terms of mean KS2 attainment, schools with higher mean KS2 APS were found to have lower attrition. At the student level, T1 SRL-SRS score and gender were found to be statistically significant. Higher T1 SRL-SRS scores were associated with lower attrition and females had a lower attrition compared with males. Please see Appendix H for details on these logistic regressions.

As specified in the SAP, the impact of missing data on the estimates in our impact analyses for SRL-SRS was examined by first using multiple imputation via chained equations to predict a range of missing values for the SRL-SRS outcome at T3, T1, and T2. These 20 imputed datasets were then used to re-estimate the effect of OBT and CJs at both longitudinal outcome (T3) and interim (T2). These models are presented below.

Table 23: T3 SRL-SRS data—re-analyses using multiply imputed data

	Unadjusted means				Effect size		
	Intervention group		Control group				
Outcome	n (missing)	Mean (95% CI)	n (missing)	Mean (95% CI)	Total n (intervention; control)	Hedges g (95% CI)	p-value
SRL-SRS, OBT v control	762 (0)	17.67 (17.41; 17.67)	757 (0)	17.18 (16.91; 17.45)	1519 (762, 757)	+0.07 (-0.18; +0.32)	0.60
SRL-SRS, CJs v control	657 (0)	17.58 (17.30;17.86)	757 (0)	17.18 (16.91; 17.45)	1414 (657, 757)	+0.20 (-0.03; +0.43)	0.08
SRL-SRS, OBT v CJs	762 (0)	17.67 (17.41; 17.67)	657 (0)	17.58 (17.30;17.86)	1419 (762, 657)	-0.13 (-0.35; +0.09)	0.25

In terms of statistical significance, estimated impact on T3 SRL-SRS obtained from the multiple imputed (MI) data did not contradict what was observed with the complete case ITT analyses: no statistically significant impact was observed for OBT or CJs when compared with the control and no statistically significant difference was observed between OBT and CJs when compared directly. While not statistically significant, the effect sizes obtained from the MI were larger for both OBT (+0.03 SDs in ITT; +0.07 SDs with MI) and particularly CJs (+0.08 SDs in ITT; +0.20 SDs with MI) when compared with the control.

Table 24: T2 SRL-SRS—re-analyses using multiply imputed data

	Unadjusted means				Effect size		
	Intervention group		Control group				
Outcome	n (missing)	Mean (95% CI)	n (missing)	Mean (95% CI)	Total n (intervention; control)	Hedges g (95% CI)	p-value
SRL-SRS, OBT v control	762 (0)	17.52 (17.24; 17.79)	757 (0)	16.86 (16.56; 17.15)	1519 (762, 757)	+0.19 (-0.03; +0.40)	0.09
SRL-SRS, CJs v control	657 (0)	17.99 (17.68; 18.29)	757 (0)	16.86 (16.56; 17.15)	1414 (657, 757)	+0.43 (+0.20; +0.66)	<0.01
SRL-SRS, OBT v CJs	762 (0)	17.52 (17.24; 17.79)	657 (0)	17.99 (17.68; 18.29)	1419 (762, 657)	-0.24 (-0.47; -0.01)	0.04

As observed with the T3 SRL-SRS outcome, the MI-estimated effect sizes for the T2 SRL-SRS are larger than those estimated with the complete case ITT analyses. This was particularly the case for CJs where the MI effect size was observed to be +0.43 SDs (95% CI: +0.20; +0.66) compared with the ITT estimate of +0.33 SDs (95% CI: +0.17; +0.48) with both being statistically significant. For the OBT, the MI estimate is also higher at +0.19 SDs (95% CI: -0.03; +0.40) compared with the ITT estimate of +0.16 SDs (95% CI: +0.01; +0.30); however, only the ITT estimate was statistically significant.

It seems apparent that the MI estimates resulted in increased estimates of impact for both OBT and particularly CJs for SRL-SRS at both longitudinal follow-up (T3) and interim (T2).

Additional sensitivity analyses and robustness checks

Due to Covid-19 school closures having an impact on response rates, participants were given an extended period to complete the survey—six months, whereas we would usually allocate between two and four weeks—and the opportunity to complete the questionnaires at school or at home. While allowing six months was beneficial to response rates, it does need to be acknowledged that it may have had an influence on recall. In view of this, sensitivity analysis was conducted to explore any impact time and location had had on the primary outcome variable, SRL-SRS, at both T3 and T2.

Location where the SRL-SRS was completed at T3

For the location-variable sensitivity analyses, we focused only on those students for whom we had an SRL-SRS score at T3 (n = 774). Students were identified as either completing the questionnaires in school or elsewhere. Over 50% in each trial arm completed the survey at school. When looking descriptively there seemed to be a trend that when completed at home, the overall SRL-SRS was higher. To examine whether there was evidence of differential impact relating to completion location, sensitivity models were constructed that included the location variable as a fixed effect and as an interaction with group membership for each trial arm. No significant interaction was observed between location (school or elsewhere) and trial arm ($P > 0.05$) leading to the conclusion that the completion location did not introduce bias into the ITT impact analyses of the primary outcome for either OBT or CJs.

Time when the SRL-SRS was collected

As with location, for the time-variable sensitivity analysis we focused only on those students for whom we had an SRL-SRS score at T3 (n = 774). Students were identified as either completing the questionnaires before Christmas or after Christmas. Across the trial arms, most students completed their questionnaires before Christmas (75% overall). From exploration of the descriptive statistics, there seemed to be little difference in the mean scores for those students

completing before or after Christmas, but sensitivity analysis models were still constructed that included the time variable as a fixed effect and as an interaction with trial arm.

No significant interaction was observed between time (before or after Christmas) and trial arm (P > 0.05). We therefore found no evidence that the time when the T3 SRL-SRS outcome was collected introduced bias into the ITT impact analyses of the primary outcome for either OBT or CJs.

SDQ subscales

As specified in the SAP, follow-on exploratory analyses were undertaken for five subscales of the T3 SDQ outcome relating to prosocial behaviour, emotional problems, conduct problems, hyperactivity, and peer problems. The findings of these exploratory impact analyses are summarised in Table 25.

Table 25: SDQ subscales—ITT analysis at T3

Comparison	OBT v control		CJs v control		OBT v CJs	
Sample	337 (OB 180; control 157)		267 (CJs 110; control 157)		290 (OB 180; CJs 110)	
SDQ scale	Hedges g (95% CI)	P =	Hedges g (95% CI)	P=	Hedges g (95% CI)	Hedges g (95% CI)
SDQ (total)	-0.38 (-0.68; -0.08)	0.01	-0.48 (-0.80; -0.17)	<0.01	+0.16 (-0.09; +0.42)	0.21
SDQ: prosocial scale	+0.10 (-0.17; +0.37)	0.47	+0.20 (-0.20; +0.60)	0.33	-0.10 (-0.49; +0.29)	0.63
SDQ: emotional problems scale	-0.28 (-0.57; +0.07)	0.05	-0.34 (-0.74; +0.06)	0.10	+0.08 (-0.16; +0.31)	0.53
SDQ: conduct problems subscale	-0.44 (-0.71; -0.17)	<0.01	-0.40 (-0.66; -0.14)	<0.01	-0.02 (-0.23; +0.18)	0.82
SDQ: hyperactivity subscale	-0.18 (-0.41; +0.05)	0.12	-0.31 (-0.50; -0.13)	<0.01	+0.10 (-0.20; +0.39)	0.53
SDQ: peer problems subscale	-0.24 (-0.62; +0.13)	0.21	-0.46 (-0.87; -0.06)	0.03	+0.26 (-0.08; +0.60)	0.13

From the ITT analyses, a statistically significant positive impact for the T3 SDQ for both OBT and CJs was observed when compared with the control. For CJs a statistically significant and positive impact was observed for three of the SDQ subscales (conduct problems -0.40 SDs; hyperactivity -0.31 SDs and peer problems -0.46 SDs) whilst for OBT, the only SDQ subscale where a statistically significant impact was observed was conduct problems (-0.44 SDs).

Implementation and process evaluation findings

This chapter is structured by the three overarching IPE research questions (R8 to R10). As noted in Section 1, RQ7 will be addressed in a subsequent addendum to this report following the release of GCSE attainment data. RQ8 (made up of three sub-questions) is focused on the delivery of each intervention and student and staff experience of it. As such, this RQ is answered firstly in relation to OBT and then CJs, owing to the distinct content of both and the varied context in which each was delivered. In contrast, RQ9 (comprising three sub-questions) is focused on approaches implemented by schools post-delivery alongside the perceptions and responses of students and staff to these. Given the similarities in approach and the Covid-19 related disruptions we have opted to combine the findings from both OBT and CJs schools. Finally, RQ10 is focused on how (if at all) control schools elected to spend any incentive funds for enrichment activities.

Outward Bound Trust

RQ8a: How is the intervention delivered by the OBT?

The IPE data collection strongly suggests the programme delivered to OBT students very closely matched the intervention as described in earlier sections and as outlined in the MoU (Appendix B) and accords with the core inputs detailed in the logic model (Figure 1). The programme was delivered to each participating school over a five-day period, Monday to Friday, at some point during the autumn term 2019 (September through to January 2020). Due to the nature of the programme and how it is intended to function, details of the delivered experience varied across student groups. Various factors influenced this. Below, we focus on the key consistent features and processes inherent to programme delivery and the experience overall while also flagging instances where variation was described or observed.

OBT centres, facilities, staffing, and accommodation

As described earlier, each school visited one of five different residential centres used for the trial. Staff and students consistently reported being very impressed by the quality and suitability of facilities across all sites. Facilities included 'top of the range' equipment stores with cleaning and drying facilities and suitable dedicated spaces for preparation and reflection. Each site was described as having an impressive and comprehensive catalogue of appropriate and well-maintained clothing and equipment. The provision of plentiful, easy to access, high quality equipment and appropriate winter clothing, which was especially important given the challenging socioeconomic background of many in attendance, acted as a crucial facilitating factor for student engagement with the programme.

> *'I was really impressed with the … layout … how much money had been spent on the equipment, and to make the instructors look very professional … You can clearly see the step up in money and funding there in comparison to places I've been in the past. So instantly we were very, very impressed as staff' (SBL, Case L, OBT).*

Each of the sites continued to operate as normal throughout the period of the trial; this meant students did not have exclusive access to the site, facilities and OBT staff. Depending on the size of the site, students would be sharing the facilities with between one and three other schools, some of which were in the trial and others not. School staff and students met and interacted with OBT staff at different levels throughout. A Head of Centre assumed overall responsibility for running each site and was ultimately accountable for ensuring everyone's health and safety. Next sat the Centre Operations Manager whose day-to-day remit was to ensure that programmes of activities were collectively operable, taking into consideration delivery, staff qualification levels, and any safety concerns. Furthermore, they acted as a central point of contact for visiting school staff to communicate any messages or concerns. The Course Director (Senior Instructor) fulfilled a much more hands-on function with each specific group of students.

The intended number of students due to attend from each school was 24. For most school groups, however, numbers were often lower. Key reasons for this included:

- students voluntarily deciding against attending, for example, for fear of being away from family, apprehension about activities, or because friends were not also going;
- illness or poor health;
- moving schools or having been excluded since being selected;

- the school intervening in some way to prevent a student attending, either because they did not wish to be seen to reward poor in-school behaviour or because a judgement was made that their attendance would endanger their own safety or the safety of others.

Upon arrival, an early task undertaken was to split students into two groups of 12. The extent to which school staff actively fed into decisions about groupings versus delegating this to OBT staff was not uniform. Some school staff had strong views on which students they wanted to keep apart (or together), often having arranged this with their Course Director in advance of attendance; this was particularly the case if there was a student/s with a specific learning or physical need. In other instances, visiting school staff happily allowed OBT staff to lead on decisions. An OBT instructor was then assigned to each of the groups for the entirety of their stay, ensuring that the centre's ratios were at least 1:12 (in line with most national governing bodies' minimum staffing ratios for activities). In collaboration with the students, a group name was agreed upon to distinguish between the two groups. This was important because during structured adventure learning activities, the two groups from the same school were treated separately – although there were ample opportunities for the two to join during meal teams, informal periods, and evenings. Throughout the week, the OBT instructor assigned to each group had the single greatest contact with those students, responsible as they were for preparing, running, and debriefing about each activity undertaken. They therefore arguably had the greatest potential to influence the attending school group in either a positive or negative way. Typically, the instructors were described as young but experienced, well qualified, relatable, and passionate about adventure learning and the outdoor environment.

Types of activity

Each instructor worked closely with the Course Director and visiting school staff to ensure each day was maximised in terms of learning goals and delivery of appropriate adventure learning activities. At the start of each day, the Course Director held briefing sessions with instructors and all school staff to share any new developments in terms of health and safety issues, weather considerations, and to ensure everyone was fully briefed about the intended format of the day's activities. The MoU stipulated that at least two visiting school staff accompanied the students throughout the course of the week. This meant that, theoretically, instructors were supported by at least one visiting school member of staff during any group-based activity delivered during the week. However, it is important to clarify that responsibility for the health and safety of students throughout the delivered adventure learning activities unambiguously resided with the OBT instructors and not the school staff. The OBT instructors led activities while the visiting school staff took the cue from instructors on how to support them but were expected to be responsible for ensuring students behaved appropriately.

> *'The health and safety conversations that were had with us, the briefings, the way that the children were spoken to … was really, really high quality. And then as we went through it was very obvious that they were taking control of the situation and they weren't expecting us to instruct. We were there just to manage, and we basically allocated ourselves a group and just stuck with them' (SBL, Case L, OBT).*

However, IPE data collected suggests some variability in staff numbers attending from each school: usually, two school visiting staff did attend, however, in a significant minority of instances three staff attended, meaning some groups had two members of staff to support activities compared to one in another. The circumstances underlying the need for this were specific to each school but included medical or learning needs, child protection related issues, or an uneven gender balance of students selected. By way of contrast, evidence emerged that certain schools were unable to send the minimum number of staff for various stated reasons including an urgent school need such as an Ofsted inspection or earmarked staff having left the school or experiencing an illness or injury and the school being unable to find a willing replacement.

> *'I would say maybe 70% [of participating schools sent at least two members of staff to support]. It wasn't particularly great. Sometimes we would get maybe just one member of staff … we would probably put that member of staff with the group that was struggling the most and then the other instructor would be unsupported, but we run under that basis that we can run groups without visiting staff' (Senior Instructor, OBT).*

Given the variable levels of school staff support during the delivery of activities this may have had an influence on student confidence or willingness to engage in different activities as well as potentially limiting the opportunities to form improved,

more trusting relationships with school staff, which was a key intended mechanism through which the programme was expected to influence short, medium, and long term outcomes.

Core programme experienced and formal activities delivered

Each centre was able to offer a range of adventure learning activities that varied in their level of physical challenge. Activities were delivered either within the boundaries of the site itself, nearby (accessible by hiking, for example), or further afield (for example, using one of the OBT minibuses or local public transport). Examples included:

- sailing;
- canoeing;
- kayaking;
- orienteering;
- tunnelling (on site purpose-built complex);
- gorge walking;
- scrambling;
- high ropes activities;
- rock climbing (both site-based on an artificial climbing wall and out in the natural environment);
- overnight hike and camping; and
- hill-walking.

Each centre sought to take fullest advantage of the natural environment unique to their location when making judgements about programme composition. Inevitably this led to some variation in the specific activities each group undertook.

> *'OBT centres are all slightly different but there are threads that run through them. We all climb, we all gorge, we've all got canoes, we all go out on expeditions. We've all got various forms of high challenges … fabulous estates and access to National Parks. Clearly one climbing venue in Aberdovey is pretty different to a climbing venue in the Highlands. [We] do some of the same activities … have some of the same processes in terms of reviewing and facilitating and using learning model ... but I always get fascinated by the environmental differences of our centres' (Head of Centre, OBT).*

Furthermore, the geographical location of each centre also influenced the sense of wilderness encountered and the extent to which each group interacted with members of the public. This was an additional influencing factor as to how activities were delivered and experienced.

> *'We get young people at Loch Eil, and they might go off on expedition and never see another human being. Actually, in the Lakes, well tourism actually means there's people everywhere' (Head of Centre, OBT).*

Nevertheless, while acknowledging the scope for variation in the specific activities undertaken and geographical context, there was an overarching standardisation to how the programme was delivered. For example, virtually all schools reported that soon after arrival they would be joined by their course director and dedicated instructors and encouraged to engage in a 'run and dip' activity. This was reported by site staff to be something of an OBT tradition that involved running or jogging to a nearby body of water (sea or lake) and strongly encouraging students (and visiting school staff) to jump in, typically without waterproof clothing.

> *'They may go and do jog and dip, which is a classic Outward Bound start' (Course Director, OBT).*

Thereafter, schools received the same overall number of delivered adventure learning sessions throughout the week, one of which involved a dual-staffed adventure (typically something more high risk and complex such as gorge walking) where an additional OBT instructor assisted. Although not specific to the EEF-funded trial, the sample programme provided on the OBT website (see Appendix I) broadly aligns with what each school experienced.

The following quotation from an OBT strategic lead emphasises how provision was very closely aligned to their usual model but with some customisation incorporated. For example, OBT site staff were briefed and made aware well in advance of participating schools arriving what the specific intended short, medium, and long term outcomes were that

the trial was seeking to evaluate, which inevitably influenced the language used and the individual programme design in collaboration with school staff. This kind of tailoring was said to be especially the case in relation to the design of the accompanying journal that the students were expected to work with school and site staff to complete.

> *'So, all of it was business as usual for us … Everything was the same, just with an EEF focus, a little bit. Like the EEF journal … we use journals all the time in our Outward Bound courses, so we just changed the language slightly to marry what the trial was looking at to help support that … and some groups did not use it because some groups would not engage with writing something down on a bit of paper, whereas other groups would engage with that' (Learning and Adventure Manager, OBT).*

Below we further explore the distinctive ways in which OBT staff worked with school staff to ensure a tailored programme for each student group that accommodated preferences while at the same time adhered to the trial parameters and conformed with health and safety requirements that arose on any given day.

Preparation and tailoring of the programme for each group

Irrespective of the amount of prior engagement from schools, the IPE data strongly suggested that provision was made by OBT staff to ensure the delivered programme catered as specifically to the needs and preferences of each school and student group as possible. This included OBT staff being open to revising and refining initial planned programmes to consider any changes in participant circumstances or in response to how particular groups experienced initial activities undertaken (for example, adjusting the extent of physical challenge either upwards or downwards).

> *'There was definitely quite a bespoke package, if you like, to try and hit what we wanted. Certainly, when we did the activities, we had a feedback session or a review session in the evenings and they were always coming back to, "So what was the point? What have we learned from this? How does this tie in with our confidence? How are you going to take this back in to a school situation?" So, in terms of the goals and objectives of what we wanted as a school, in terms of the delivery to them by the OBT I thought was absolutely superb, from the leaders through to the instructors throughout the week … they couldn't do enough for us' (SBL, Case K, OBT).*

In addition to listening receptively to ensure the programme activities and overall goals were fit for purpose, OBT staff were also amenable to incorporating specific words and phrases meaningful to the students that might make transference back to an in-school environment more likely.

> *'We work with any customer to maybe target words towards their course and their outcomes' (Senior Instructor, OBT).*

Most school staff recognised and appreciated the efforts that course directors and instructors made to tailor the offer to best meet the needs of their students. However, one SBL desired more influence on the activities provided and perceived that one of their school groups ended up having an inferior overall programme to the other.

> *'I would rather have had more input as to what we were doing each day … I think one group, when we were split, got a better deal than the other one, not that the kids would have noticed; that was what I personally think we would have got out of it better so I would have preferred more say in that but actually it worked really well' (SBL, Case E, OBT).*

There were instances noted where different groups experienced different activities, or modified versions of the same, often for wholly legitimate reasons such as inclement weather or concerns about students from a behavioural or medical need perspective—not that there was any evidence to suggest students were aware of any changes or differences. For example, during one of the case visits, we were discreetly informed by an OBT Course Director that originally the intention had been for one school to undertake an overnight camp-out but because of the group being viewed as 'high risk' this became adjusted to tents being taken out for dinner but returning to the dormitory accommodation for bedtime.

In addition to the personalisation of the core adventure learning activities, the more informal periods in between and in the evenings were largely left to the discretion of visiting school staff. The extent to which they actively supervised or were willing to leave students to be independent varied, with some opting to run far more structured activities than others. For example, some schools put on additional sessions to go through the OBT journal or recreational sessions such as a talent show or quizzes. School approaches to mobile phone usage were an additional illustration of variation: some

employed a strict blanket ban whereas others were far more relaxed offering unrestricted access during 'down-time'. Such variations may have had implications on the extent to which students engaged with or related to visiting school staff. Appendix J provides an illustrative example of how a particular school had their programme tailored and outlines how their students and staff prepared and reflected upon different activities.

Philosophy underpinning the programme overall and how specific activities were run

A recurrent theme was the attention to detail that had gone into running the OBT programme and overall coherence between delivered activities and wider learning goals. At an overarching level, students were encouraged to act independently (with appropriate guidance) and resiliently and to value and practice teamwork. Everything connected to the programme—from site organisation through to instructor communication style—was imbued by those core values. The OBT employed the Frame, Frontload, Activity, Review, and Transfer (FFART) learning approach throughout programme delivery; its application is thoughtfully laid out in the following quotation from a strategic lead.

> *'Intertwined with all that [activities delivered] is the learning process that we use at OBT, which is frame, frontload, activity, review, transfer—which happens throughout every activity. So, we frame why we're doing what we're doing. We frontload it with some sort of learning material, i.e., comfort zones or the reward versus effort seesaw …, just to give them some sort of concept of how we're going to do what we're going to do. Then they do the activity … review it using that model, so how were you at the start of this activity with your comfort zones and what are you now, and then the last thing being the transfer … How does that transfer to you being at home or at school?' (Learning and Adventure manager, OBT).*

Course directors also had the autonomy to independently research and bring together a range of bespoke learning resources and theories to further maximise learning for different groups (see Appendix H for an illustration of this). Care was taken to ensure adventure learning activities were not just an end in themselves but led to the acquisition of transferable life skills that would benefit students in their education and help them achieve wider life goals. Alongside the use of journals outside of the core delivered activities, each activity was fully reviewed with the learning explicitly discussed in relation to transference to scenarios more relevant to students' day to day lives—meaning there was clear evidence that reflection of learning (metacognition) as outlined within the logic model was being incorporated into the running of the programme.

OBT staff encouraged students to act independently but this was balanced against an overall set of responsibilities and expectations they needed to adhere to throughout the week. For instance, it was made very clear to students they would need to take responsibility for locating their kit, take care of it during any activity and ensure it was returned cleaned; failure to adhere to this would result in a consequence (typically deducted activity time). In essence, students would be given an unambiguous set of expectations and clear guidance, be supported and equipped with the skills and knowledge to meet the expectations but would then exercise their own agency as to the extent to which they bought in to that.

There was strong evidence that the clarity of messaging was a prominent and skilfully exercised feature of how OBT staff interacted with students in general. Instructors were praised for their ability to communicate expectations calmly and consistently in relation to different activities and tasks. The typically young and enthusiastic nature of the instructors helped make them relatable and in keeping with the ToC description, acting as appropriate role models throughout.

> *'They [OBT staff] were very engaged with the kids. They were on the same level as the kids. They understood them' (PE Teacher, Case C, OBT).*

However, despite making attempts to be friendly and personable with the students involved, there was from the outset a calm assertiveness to the way instructors interacted and communicated with students. For example, listening carefully to instructions was a non-negotiable, especially items relating to health and safety.

> *'The members of staff were very firm, very fair, and I think the kids knew from day one where they stood with them and the boundaries … they were always set from day one and they were consistent as well so there was never one rule for one and one for another, they were always well-organised' (Geography Teacher, Case K, OBT).*

For the most part, visiting school staff held back from taking centre stage during the formal adventure learning activities, very much taking their cue from the OBT instructors so as not to undermine their authority. In all but the most serious instances of disruptive or dangerous behaviour, school staff allowed OBT staff to manage behaviour (especially during the preparation phase) and, in keeping with the ToC, put the responsibility on the students to exercise their autonomy.

> *'For me it was a lovely learning experience … the staff … taking a different approach … putting the onus on them [students] and me not managing their behaviour for them' (SBL, Case J, OBT).*

If students did not listen or acted irresponsibly, the whole group would be delayed and could miss out on a planned activity (or part of it) as a result. One simple but effective device instructors used was to activate a stopwatch when students repeatedly failed to stop talking; time would then be deducted from their current (or future) activity, albeit with opportunities for the group to earn it back. Interestingly, evidence of group self-management among the students to hold their peers accountable emerged, such was their reluctance to miss out on the formal activities.

> *'They grasped that if the talk and the safety instructions are on then people aren't just going to carry on … All that's going to happen is that they're going to wait longer for it, which means that they are going to have less time to do the things that they want to do' (SBL, Case H, OBT).*

The physical environment and well-established processes for navigating the site complemented OBT staff delivery of activities and communication with students. School staff feedback suggests meticulous attention to detail in site operations that aided student navigation of a busy, potentially high-risk environment as smoothly as possible. For example:

- single direction lanes for walking around high traffic areas of the site;
- colour co-ordinated human sized growth charts that corresponded with coloured tags on equipment and clothing to make independent kit preparation and return as easy as possible; and
- clear and replicable routines such as being at mealtimes for set times and lining up procedures.

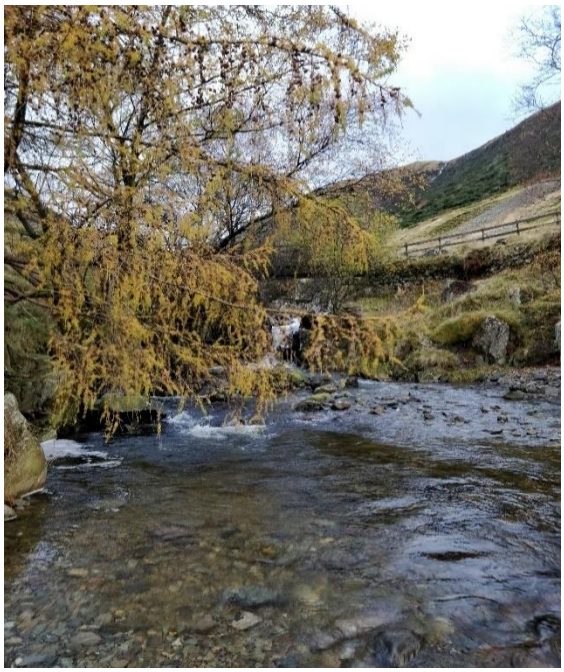
Experiencing the actual adventure learning activity

Teamwork and relationship building were at the forefront of all activities, with groups experiencing success and failure together. Visiting school staff were usually an extension of this, participating in the activities alongside the students.

> *'There's no point us just standing at the side in our nice warm clothes while they're all jumping in a lake. Right from the get-go we were very, very clear on that: if they're being asked to do it then we'll do it because we don't want to be hypocritical ... we're all doing this together. That was the mantra really from the start … we work together … it doesn't matter if you're a staff member or a student or an instructor, we do this like we're a team' (SBL 9, OBT).*

Different activities brought different challenges requiring different skills and competencies to overcome them. Certainly, the extent to which students (and staff) were out of their comfort zone varied significantly from task to task—depending on a host of different factors including relative physical fitness, experience of undertaking the specific activity, and familiarity with the outdoors and adverse weather conditions in general. Vignette A provides an illustration of how teamwork, communication, and relationship-building pervaded the entire gorge walking task observed during one of the case visits.

Vignette A: Examples of teamwork, communication, and relationship-building activity recorded during a gorge walking activity



- Pairing with a fellow student and helping each other put on a life jacket, safety belt, and helmet and safety spot check to ensure everything was fastened and fitted correctly.
- Rotating the responsibility for carrying one of the large equipment bags that included everyone's lunch (although some found this too physically demanding).
- Being actively responsible for each other during the walk itself and practicing the 'support hold' technique as and when necessary.
- Rotating who led the group, the instructor occasionally requesting that those at the lead stopped and went to the back to help those struggling.
- Genuine encouragement among the group to persist and keep going, particularly during the most challenging sections.
- Empathy and concern for the minority who felt unable to continue the task and that withdrew.
- Group praise and positive recognition for the small number of individuals that had been willing to partake in the finale—a jump off a small cliff into a plunge pool.

RQ8b and RQ8c: What are the responses from students and staff to their experience of the intervention? Do students [and school and OBT staff] believe that the intervention has improved their non-cognitive skills?

Due to the interconnectedness of RQ8 sub-questions b and c, we have elected to merge them to draw out the key OBT-related findings.

OBT student and staff responses to the programme, how they engaged with it and the key perceived outcomes derived from it

The overwhelming majority of feedback from staff and students was that the OBT intervention was extremely well received, in keeping with or exceeding expectations, the quality and effectiveness of the programme regularly drawing high praise. The following quotation was typical of feedback provided by staff and students.

> *'The activities were fantastic. The instructors were brilliant. The facilities were great. It ticked all the boxes in terms of the things, the challenges, I wanted the students to face: resilience, being uncomfortable, out of their comfort zone, developing leadership skills, developing teamwork. It did all of these things. It was brilliant' (SBL, Case D, OBT).*

For a significant minority of students, involvement in the OBT programme was perceived to have had a profoundly powerful, even transformative effect on a student's life, arguably beyond the parameters laid out in the ToC and scope of the impact measures. Although subjective and not generalisable, it is nevertheless difficult to not be moved by the power and influence the programme was perceived to have had on certain students. Some illustrative examples are laid out below (with some of the sub-themes elaborated on in the later part of this section) to give a sense of just how impactful the programme was perceived to have been for individual students.

Reframing ambitions

> *'I can remember conversations that we had on the bus going to activities with one particular student, just talking about her life ambitions and how they weren't that high. But during the course of the week, she was, like, "I really want to be a paramedic, I really want to go for it and do all this sort of stuff and be really involved in activities where you [member of staff] can help." I was talking about mountain first aid and things like that and, yeah, she was just getting really interested and her belief in herself grew massively and when we came back in to school she'd come and see me during form period*

and just have a chat and chat about her home life a bit and chat about things she was finding difficult and, yeah, even now, even though we've almost had a year out of school' (Science Teacher, Case K, OBT).

A vehicle to re-engage with school and take up wider offers such as after-school clubs and enrichment activities

'There was a girl and I know her home life isn't great, she struggles with real anxiety, she went away, she loved it. She was one of the best … the feedback we got she was one of the best kids there. This year she signed up to the Combined Cadet Force. Two years ago, that kid would have cried if you'd said come and do this. So, it's kind of nice. Like I said to you before, some of those kids you would never imagine they would do Duke of Edinburgh because they're not those sort of kids, the outdoorsy style kids. They're doing DofE. It's amazing to see how some of them have journeyed' (SBL, Case G, OBT.)

A space to be noticed and opportunity to excel

'One boy got to the top of one of the mountains and just said, "Well, I would rather be standing here on top of a mountain than sat in my bedroom on my phone. I've learnt more here than I have in the rest of my life"' (SBL, Case A, OBT).

'I'm looking at one kid who is probably—he's English additional language—on the autistic spectrum as well, struggles quite a bit really with just getting involved and engaging himself and we were a little bit worried about him probably at this point, were we going to miss him, could quite easily fall under the radar and he's screaming ahead. His behaviour points are the highest in the group, his attendance is 100%. I remember that week he was just a soldier, he just kept going and going and going. He was the grey man. He was the guy that nobody was really expecting a lot from but really, really came out of his shell and excelled' (SBL 9, OBT).

'One of the girls that's coming was just very, very nervous … she did really well, and she has been a massive success story. She's in my form and I know the impact it had on her. She still talks about things that she did there to this day, and it's a year down the line. I know what that did for her. It's a big turning point for her really' (SBL, Case H, OBT).

However, not every student benefitted from the experience. For example, there was one serious incident involving a student that needed police involvement. The student was required to leave the programme prematurely and was subsequently expelled from school. There were a couple of other isolated incidents involving very small numbers of students needing to be collected by parents due to not responding well to the programme or being homesick. In addition, a small minority of students needed to be withdrawn from the activities for part of the week due to their challenging behaviour.

What follows is a thematically arranged exploration of what the OBT did that stood out for students and school staff, their responses to it, and any perceived short or longer term outcomes to have emerged.

Response to the activities undertaken, the degree of challenge, and growth mindset

As outlined earlier, an extensive range of activities were run as part of the programme, and these varied in terms of the degree of physical challenge and the extent to which individuals felt out of their comfort zones. Gorge walking and the overnight hiking recurrently emerged as being particularly challenging, especially with inclement wintery weather conditions factored in.

'I think that for some of them, especially those who had been literally on their hands and knees and crying as they went up, just how impressed they were with themselves when they actually got to the top' (Geography Teacher, Case J, OBT).

'The expedition was great because it was a wet day, it was cold, it was windy. Putting the tents up in the evening was a challenge even for the staff! It was genuinely, "You're on the moors, you are genuinely on your own"' (SBL, Case K, OBT).

Most students were pushed towards the edges of their comfort zones in at least some way over the week. However, the centre infrastructure, and the routines and processes included in the FFART model and the support of qualified instructors and school staff, helped provide most with the necessary reassurance and enabling environment to give things a go. A key part of that for many of the students—especially those disengaged with schooling, lacking in opportunities for enrichment, and, frequently, with low levels of self-esteem—was the evolution from a fixed mindset to

a growth mindset—where requests of them that would previously have been perceived to be unattainable were met with far more openness and greater resilience.

> *'I think that I kind of realised I could push myself a little bit more. And because doing that mountain was hard but I realised I could do it and I made it and I wasn't dead. And I was like, "Oh I can do that!", and before that I was like, "There's no way I can do this, no way I can climb up a mountain and then climb back down"' (Student, Case B, OBT).*

Providing a platform, space, and opportunity for students previously known for under-achievement to succeed at something challenging was very powerful. The sense of pride and accomplishment this brought many students was something seldom experienced before, especially within a school-based context. Student eagerness to share their success with their parents was frequently observed. This achievement was (or could have been) the catalyst to re-engage with school and reframe future aspirations and goals; however, to some extent this potential was compromised by a range of factors but most prominently the proximity of Covid-19 to when the programme finished.

> *'I found it really exciting. It was out of our comfort zone so … because I think I wouldn't have done it otherwise because it wasn't something that I wanted to do at first but once I got there, I think it really helped with team building skills. It also helped me not to be scared of things that I haven't done before. I felt so proud of myself, I was, like, I did it! I was not expecting myself to do it' (Student, Case A, OBT).*

Like the students, school staff also had a range of familiarity with adventure learning and physical fitness levels, with some activities representing a significant challenge. School staff willing to share being outside their comfort-zone, alongside a growth mindset in overcoming this, became particularly powerful role models as well as being an important, antecedent in establishing trust with students and nurturing a positive and meaningful relationship.

> *'Having visiting staff out of their depth is amazing for a young person to witness … if they get through it. And if they showcase the young people that they are nervous, that they are scared, or that they are tired and showing that level of vulnerability is one of the most important things I think that you need to have as a [visiting staff member], or an instructor, to level with the students, because it's not something that they are often aware of, because showing vulnerability takes a lot of confidence and it takes a lot of trust to be able to do that to a young person, because it can be capitalised on and not used in the right way. But used in the right way it can really benefit a young person so much' (Learning and Adventure Manager, OBT).*

While most students reacted very positively to the level of challenge placed on them, for a minority it proved too much. The unfamiliarity with a residential setting combined with missing family did not foster a growth mindset but instead reinforced a negative, fixed mindset and a sense of personal failure.

> *'I think for some … it might have actually reinforced his inability. He didn't do the cold-water river task, he bailed out, he didn't … climb up a rigging. He said it was too high. So, it's reinforced that "I can't" attitude, which is difficult' (SBL, Case D, OBT).*

Unforgiving winter weather conditions compounded the scale of discomfort and many students—and certain school staff—reflected that undertaking the programme in more temperate months may have been preferable. Indeed, there was evidence to suggest that the severity of the weather sometimes detracted from some of the learning and acted as a barrier to trying to shift existing mindsets.

> *'I don't think it was the activity that was the problem, it was the uncomfortableness … So yeah, making things less uncomfortable actually might have seen more positive results for those who aren't able to do things ... If you make things easier, they're more willing to have a go' (SBL, Case D, OBT).*

Some students reflected carrying forward aspects of this growth mindset to tasks back at school.

> *'I think that when I got back when you got given a challenge to do, I didn't give up on it, well, I don't really give up on it as easy as what I used to do' (Student, Case E, OBT).*

School staff also picked up on this theme in relation to certain students giving several examples of how they perceived the programme to have influenced GCSE subject choices.

Encouraging reflection on learning

An area of the programme that was met with a less enthusiastic or consistent response was the use of the journal. Certain students struggled with the largely one-dimensional written focus of this. There was a general sense that it wasn't always appropriately differentiated or accessible to all. On balance, it was one of the least prioritised areas, with variability in the extent to which it was engaged with.

> *'I think for some of our students they struggle with the idea of writing things down in a journal … Every night we went and they were asked to fill out their forms. They were asked to fill out the booklets and some of them just really hated that format … So, I'm not sure that they actually documented how they really felt anyway. I don't know if another medium would work better for some students, like an online app or something like that?' (Teaching Assistant, Case D, OBT).*

However, it is important to recognise that the journal was just one of many mechanisms for reflection. Reflection was an ingrained feature throughout, occurring during activities with instructors stopping mid-way through to emphasise a point or a member of school staff pointing out a connection to learning back at school, and at the end of activities in dedicated learning huts or classrooms. Many of the students benefitted from being given the opportunity to experientially learn, allowing sometimes abstract concepts of learning to become more accessible and relatable because of an activity. One member of school staff even conjectured that the reflection-type skills that students acquired throughout the programme were likely to lead to improvements in their longer-term attainment.

> *'The majority of the students on that course will do a lot better in their GCSEs because they'd been to Loch Eil … I genuinely believe that because of the reflection time they had out there and the way that they reflect their own behaviours now … all of them still make mistakes … but it's the way that they actually try to rectify them … and put things right, which has definitely changed' (SBL 5, OBT).*

Relationship building, communication, and teamwork

Relationship development and the quality of interactions students had with OBT staff, peers, and school staff were key determining factors in how they experienced the programme and ultimately the extent to which it improved their non-cognitive skills. The relatively lengthy duration of the programme and being outside of the school environment appeared to be interpreted positively. The programme gave students and staff the time and space to properly reset, to be open to learning new things, and to see each other in new, more positive ways. We explore the importance of these different relationships below.

Relationship between students and OBT staff

All OBT staff (especially the instructors) were consistently venerated for their professionalism, approachability, and friendliness throughout the week. Students responded positively to the clear boundaries put in place, recognising when it was necessary to listen to instructions, while at the same time being given license to engage in light 'banter' when appropriate. Students respected and trusted the instructors acting as positive role models.

> *'The staff were really nice … they were really supportive when it came to helping us' (Student, Case E, OBT).*

> *'The kids did open up towards the end and get a lot more confident and built some really strong relationships with those members of staff' (SBL 4, OBT).*

Relationship between students and school staff

Although school staff were a useful source of support when participating in the adventure learning activities alongside the students, they really came into their own during the more informal periods of time (the bus journey, walking to an activity, or in the evenings). Both students and school staff regularly referred to the importance of forging relationships outside of a school context in a more neutral space.

'I tend to have quite positive relationships with students, but that week was nice in terms of seeing, you know, they got to see you outside of the classroom, got to see different sides of the teachers and that we are just humans and I think most of them think that we live and breathe in the school and sleep in the school! It's always the same, you see a student outside of school and they seem amazed that you're outside of the school grounds!' (Geography Teacher, Case K, OBT).

'And it's a different environment isn't it. So me, as a member of staff, I can have that while we're walking two hours to our campsite or wherever we're going, you know; it gives you an opportunity to really unpick how some of these boys tick and how they work and what home's like and what they do and don't have and what opportunities they do and don't have or think they have and don't have. So just from that, from a pastoral point of view myself, that was really valuable just being able to pick that apart and get inside their heads a little bit and just see what makes them tick' (SBL 9, OBT).

One SBL reflected on how powerful an opportunity it was for a potential head of year group to be part of something similar, to get a deep and meaningful understanding of the students (particularly those likely to have more complicated needs). As relationships developed and strengthened throughout the week, school staff were able to augment and add to the formal experiences undertaken through the core programme. The following example was just one of many incidental benefits where a member of school staff was able to intervene to ensure a student that had never seen a sheep before was able to do so—an experience that helped further cement the bond between student and staff member.

'I walked on and found the rest of my group and one of them said, "Oh sir, I wanted to see a sheep, we haven't seen any sheep", and there was a farm just there, and "I said hang on then" … I went to the farmer and said, "We've got these kids from X, and they want to see a sheep", and he said, "Yeah, bring them in." … It was a real fillip for them … a memory that they'll have to take with them. And they still talk about it, "Oh Sir, do you remember when we went to see the sheep?!"' (Assistant Head of Year, Case G, OBT).

In another example, teacher and students were able to bond over something as inconsequential as sharing in a dance song from the 90's in a more relaxed and less hierarchical environment.

'It wasn't just the big things that they did that had an impact, it was the small things. Getting ready, having a laugh. Teaching them 80s songs that they'd never heard before! Teaching them 90s dance. The thing is they have to have a key, so every time someone said I've got the key I used to say, "I've got the secret." It's the small things like that that they picked up on. I can go round any of those 20 kids now, if I shout out, "I've got the key", they'll just turn round and say, "I've got the secret!" and all the rest of the kids have no idea what we're talking about!' (SBL 7, OBT).

There was evidence that the enhanced trust cultivated with school staff that attended during the week became enduring once students returned to school.

'We spent a lot of time with them, and it helped us develop the relationship with them and the encouragement and stuff we got from them. It still stands now' (Student, Case E, OBT)'

'There are certainly some students within that group who you can have far more productive conversations with, say if something is going wrong or there's a need for some kind of intervention, whereas I think a few years ago some of them would have just downed tools, shut down, not engaged in what we were trying to sort of offer to help them out a bit, that isn't happening' (SBL 2, OBT).

However, there was limited evidence to suggest this was experienced consistently with other members of staff that did not attend the programme itself.

Relationships between students

As described in Section 1, students selected for the trial were regularly disengaged with school and the mixture of personalities was a bit of a melting pot, with many not part of regular friendship circles. Through the course of the programme, students that at the start of the week barely knew each other became united. Many students referred to the most enjoyable aspect of the week being the opportunity to make new and meaningful friendships.

'The best part … was making all the new friends that I've made and just getting to know everyone better because it's very different how someone acts in school and how someone acts when you're with them for a few days. It gave me a different outlook on people and their personalities' (Student, Case A, OBT).

'Their group became like a little family … when we amalgamated together it was nice because, like I said, they wouldn't normally mix. They were just lovely. They came out of their shells more' (SBL, Case E, OBT).

A further finding was the level of camaraderie and teamwork that the programme helped develop across the different student groups. This was a significant finding given the degree of indifference many students had for each other at the start. Group cohesion was frequently remarked upon.

'They instantly clubbed together and were motivating each other, which the Outward Bound staff, when I said that these students never come together, could not believe the fact that within such a short space of time, how much they were clubbing together and how much they were supporting one another in getting each other through the challenges' (SBL, Case B, OBT).

The philosophy underpinning the programme actively facilitated this through the purposeful activities undertaken and shared sense of purpose and teamwork. Staff referenced interchangeable roles within different groups; sometimes these were formally assigned by the OBT instructor but on other occasions became just naturally arrived at within the groups in response to a situation—the programme afforded enough autonomy to students for this to happen. Beyond teamwork for the direct purpose of the activity itself, students appeared to develop a level of authentic empathy and care for their peers that went beyond the task itself.

'When we did the canyoning one of the boys was extremely distressed, totally fearsome of the water; he was totally distressed, and it was very nice seeing the range of students around him that wanted to help him' (Teaching Assistant, Case D, OBT).

'Yeah, I think a few of us got closer to people when stuff happened and they like helped each other through the week, especially during the walk to the camp and back, people had to help each other out a lot so that definitely, yeah, we got closer' (Students, Case E, OBT).

Self-regulation and independence

Through the evolution of the week itself there were numerous examples of students being more able to self-regulate and becoming more in control of their actions. The programme encouraged them to take greater levels of responsibility for themselves and of others.

'Obviously, the resilience that was shown throughout, we've seen improvements in that in every activity and … the self-regulation and taking responsibility for their actions and taking responsibility for their kits and stuff like that. Definite improvements with them all' (Geography Teacher, Case K, OBT).

In part this was motivated through how invested most were in being able to experience the activities and their sense of commitment to their peers, school staff, and instructor.

'They were a lot calmer. More receptive. So when you asked them to do something … you'd always prepare yourself for the backlash or for a few saying, "Why are we doing this?" Towards the end they were a lot more receptive, they let you speak, they listened, they rationalised, and then if they still didn't agree they asked but it was a very different way than instead of just kneejerk reaction—why are we doing that type of thing' (SBL 4, OBT).

One interesting phenomenon noted by some school staff was how previously impressionable students were thinking more independently and showcasing the confidence to arrive at decisions autonomously, even if that meant refusing to follow the lead of popular but disruptive peers.

'One girl that actually didn't do very well, the one that moaned all the time … she got the least from it … because she never really threw herself in to it … she was quite bolshy, and the kids got fed up of it really quick … In the past they would have

folded under someone being domineering [and encouraging them to also drop out], they found the actual backbone and went, no, I'm going to do it' (SBL 7, OBT).

Other school staff observed a shift among certain students away from being overly reliant upon adults and being more resilient and motivated to take more responsibility for their own learning.

'Definitely the resilience and taking a little bit of responsibility … a lot of the students get into the habit of expecting the staff to work harder than they do, and they expect everything done for them … it's kind of become built into them a little bit more, to take on responsibility themselves' (Head of PE, Case E, OBT).

Potentially linked to this greater self-awareness and control, certain school staff noted a marked reduction in behavioural incidences when students returned to school (albeit often for not a long period before the pandemic began).

'The vast majority of the group have improved their behaviour—certainly from obviously the short term in the last year due to the lockdown but going into this year as well. These are kids who are not getting as many detentions, they're not getting as many sanctions. I'd say 60% have improved, which is really good … I mean I'm very data orientated so I map my year group around data as well just to get any red flags. It's quite clear from the point of Year 9 that the incidents declined heavily up until this point, which is obviously from when that trip happened, so it's really positive for the vast majority of that group that went' (SBL 8, OBT).

As well as a reported upturn in the attendance of some of the previously most challenging and low-attending students—

'There'd been an uptick in attendance with some of them, so there's some that's gone from 84% to 91%, which I'll take every day of the week. There's another student who … he's gone from mid-80% attendance to only having missed one day this year' (SBL 2, OBT).

Of course, any longer-term trends in attendance, as with all the perceived longer-term findings, need to be appropriately caveated given the myriad of factors associated with Covid-19, including lockdowns.

'Attendance … we noticed that the levels had increased slightly. We didn't have masses of time because obviously we wanted to track it over the course of last year and we did it in December and the idea was to track it from December through to the summer term. [But] by March we were out so we kind of lost the impetus on that one; but certainly, in the short-term, between January and February, we found that the students who attended the adventure learning, they actually increased their attendance as a group, which was a positive' (SBL, Case K, OBT).

Commando Joe's

RQ8a: How is the intervention delivered by Commando Joe's?

The IPE data collection strongly suggests that the programme delivered to the groups very closely matched that described in earlier sections, the logic model (Figure 2), and the MoU (Appendix B). The programme was delivered at each of the participating schools over a five-day period, Monday to Friday, in the autumn term of 2019 (September to December).

The CJs provision for the students differed from their normal practice of offering short sessions (no more than a school day) over a period of at least a term, often before or after the school day. In this intervention, CJs staff were asked to deliver their curriculum over a whole week, with each day lasting for some six hours and extra staffing being provided by the school. In common with other models of delivery, CJs utilised outdoor space available on site at schools and classrooms or hall space; existing or new resources and materials were also made available. Training and awareness-raising sessions for the students were offered to school staff in twilight sessions to help prepare the schools for the arrival of CJs, but there was only very low uptake of this offer of training. Although the programme across the trial was in essence the same, the nature of the delivery varied according to the location and facilities available, the students' needs, and the CJs staff member's approach. The next section describes the key consistent features and processes and some examples of variation.

Commando Joe's facilities

As highlighted above, unlike the OBT intervention, CJs worked in the school itself for the whole week. CJs staff negotiated, where they could, exclusive use of a classroom, school hall (or equivalent), and outside areas as appropriate. The group was based in the classroom (now known as 'headquarters') for the whole week and used the other areas as needed depending upon the 'mission', an example of which is described below. The available facilities varied between schools considerably, so CJs staff had to deliver the intervention in different types of accommodation, some of which were not ideal or as available as the CJs staff may have wanted, as this school-based lead pointed out:

> *'I think the only difficulty with it was that obviously they expected a base for the week, a classroom base, which we could manage but I think lots of schools will struggle to manage that. We happened to have some sort of external huts that we occasionally use that I managed to collar for a week but also, they were expecting … access to either a school gym or sports hall at any time, which is impossible with seven other year groups with PE lessons and things like that' (SBL 8, CJs)*.

Core programme experienced and formal activities delivered

Schools were asked to provide two members of staff to complement the CJs staff member—usually one, although sometimes a second member of staff was brought in from CJs to support specific missions or a particularly challenging group of students. Students were allowed to wear their own clothes rather than school uniform but were asked to dress appropriately for the outdoors and for the physical activities that they would undertake.

The CJs programme is launched through a convincing 'breaking news' themed video clip (Figure 6). The quality of video is highly professional and convincingly incorporates footage of power being lost across the country (for example, lights turning off at a nightclub and an underground train station). The scenario being faced is provided further authenticity through a series of separate audio snippets declaring things such as 'the widest black-out in living memory' and 'the power outage is unprecedented'.

Figure 6: Screenshot CJs introduction video

Soon after this, a Commando Jo emerges on screen (Figure 7) explaining: 'There have been reports of a massive cyber-attack on our national grid. The whole of the U.K. is without power. You and your team need to work together [explanation of what they need to do].' It is at this point that Operation Blackout is introduced. From the observation visits undertaken, students tended to be highly engaged and excited about the concept. (See Appendix K for a more detailed description of what Operation Blackout is.)

Figure 7: Screenshot of CJs introduction video introducing 'Operation Blackout'

The CJs core programme centred on the concept of 'missions', the CJs term for mini projects that were designed to engage students in a coherent set of activities which lead to specific outcomes. The outcomes were focused on character education or life skills. Each mission has its own title and suggested outcomes. Across the full programme there were 12 in total (see Appendix L for an overview of each). For example, Mission 1 had the following suggested outcomes for students:

- to understand the benefits of having a coherent vision;
- to actively listen to others' ideas in groups and to feedback where necessary;
- to ensure team members had understood each other clearly; and
- to consult and negotiate when formulating a plan.

A similar format of video introductions was continued throughout the course of the programme and to mark the beginning of each block of new missions. The Commando Joe emphasised what skills and attributes would be needed to successfully complete each mission. For example, for one mission this was working with and inspiring other people, communication and leadership skills, self-confidence, and resilience. A final outro video clip was also shown to the students at the end of the programme that congratulated them but that also sought to reinforce similar messages and encourage transference of skills and learning into other aspects of students' lives.

Classrooms were 'dressed' in the CJs theme to give students the feel of being on a mission, using top secret, military-type paraphernalia. Classroom whiteboards and displays were covered with information and decorations related to CJs and a 'COJO' box was situated at the front of the class full of equipment that the students would need for some of the sessions. (See Appendix M for example photographs of the CJs headquarters set up within a school setting.)

The resources needed for each individual mission were set out in the mission's plan. Resources could include items retrieved by group members from the COJO box such as radios, medical kit, and shelter-building equipment. Groups were encouraged to work together to decide on which specific equipment they would collect from the box. Each mission had a particular focus on either communication skills, leadership skills, working with others, or developing self, although all the missions touched each of these areas. For example, in Mission 1, the focus was on communication skills, where the importance of having a coherent vision and listening, consulting, or negotiating with others was underlined. By the end of the operation, there were clear goals set, so missions were effectively a series of staging posts towards the operational goals of, for example, students having:

- knowledge of core personal skills and attributes and their contribution to effective teamwork;
- the ability to apply, evaluate, and review team and individual effectiveness; and
- awareness to identify learning and development to extend team and individual effectiveness with school-based practice and beyond.

Each mission had a clear action and set-up plan with instructions to staff, for example, to split the groups into teams, giving time to decide roles, and formulate a plan. Missions also had an indication of what the team debrief should include, for example, CJs staff were asked to encourage and support students to discuss what contributed to the success of the mission and what hindered it. CJs staff were also asked to encourage students to think about why it is important to plan, encourage reflection on how the group formulated the plan, and what factors they had taken into consideration.

In the below example from a day one mission, in common with other missions during the week, it encouraged students to work together to problem-solve.

Figure 8: Extract from CJs Mission 1 plan

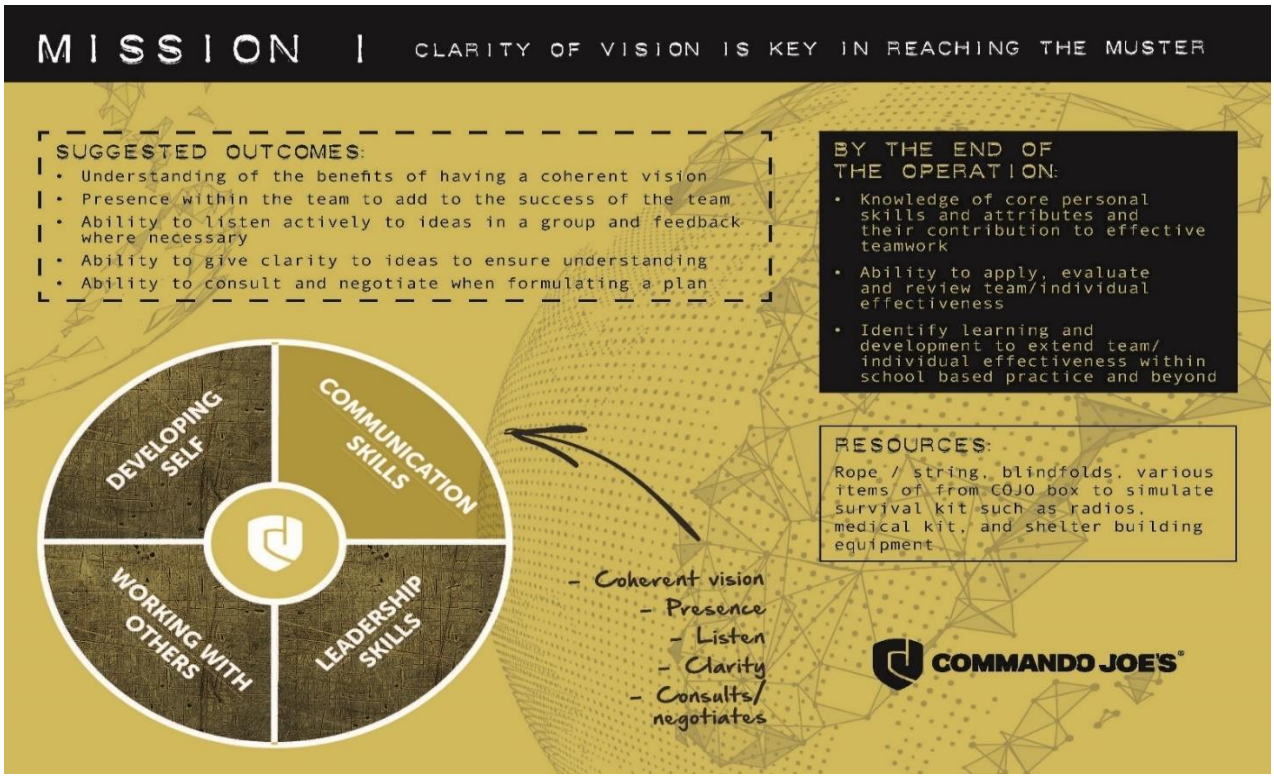
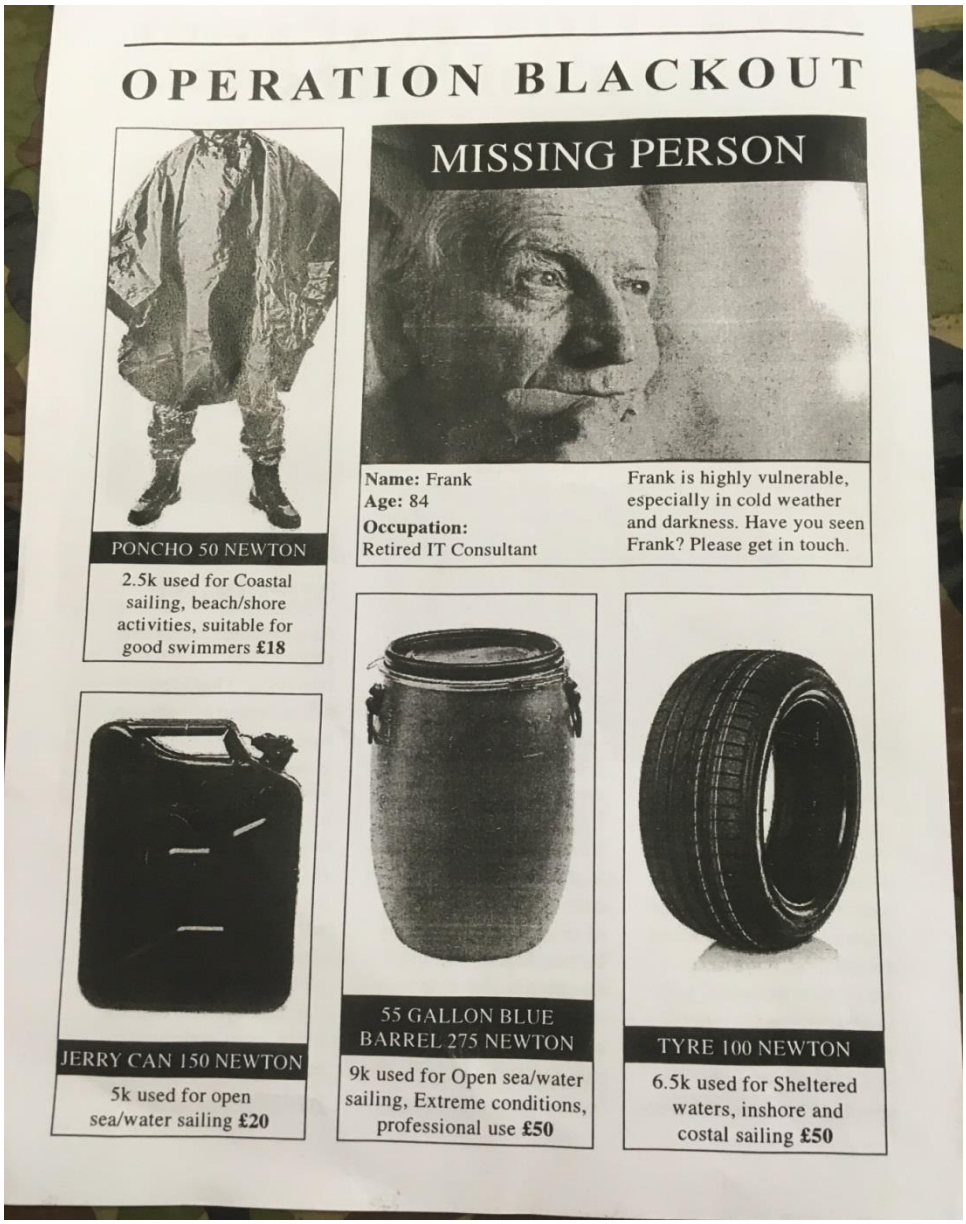
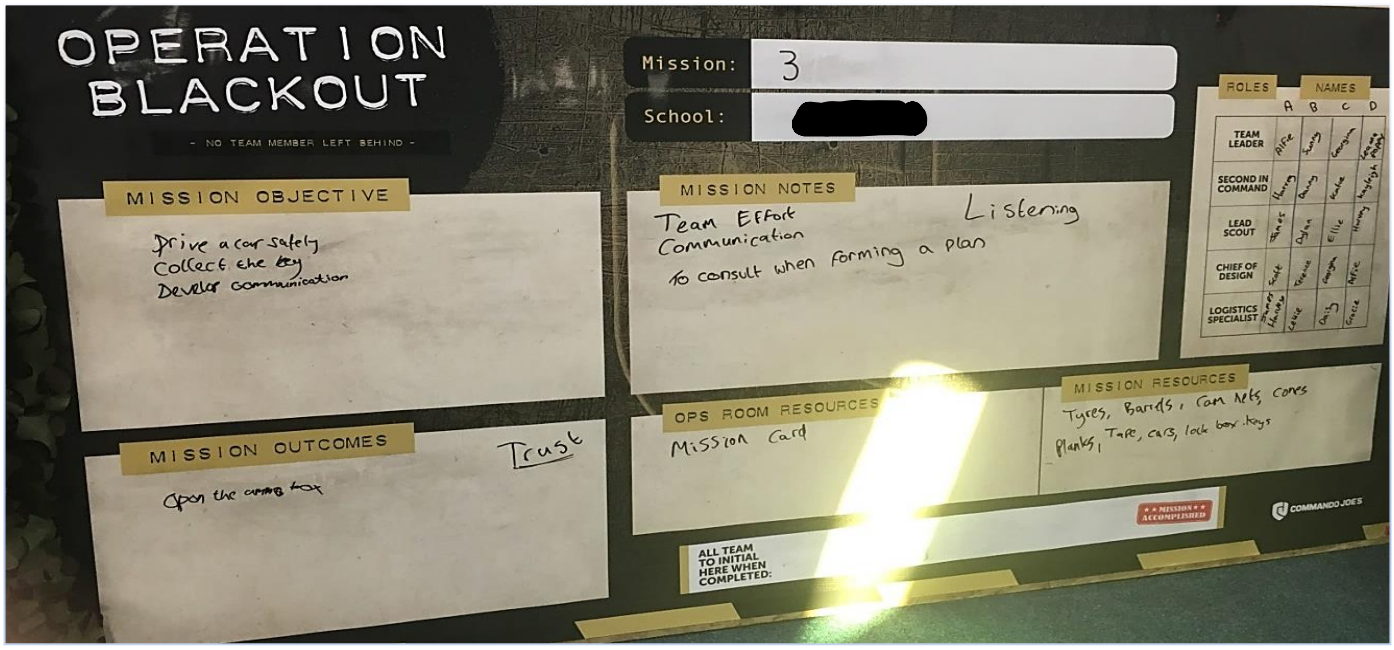


Figure 9: CJs mission-related resource



The emphasis of the missions varied during the week, but the key themes of developing communication and leadership skills worked alongside developing self and working with others. The larger group was broken down into smaller subgroups of four or five and each subgroup had members who were given the roles of team leader, second in command, lead scout, chief of design and logistics specialist. These roles changed through the week so each team member could try out each of the roles (Figure 10). Each mission had its own objective and outcomes designed to support the development of those specific areas of personal and team development.

Figure 10: CJs mission resource outlining team roles



Missions in this programme varied in size and complexity; one outside mission was elaborate, requiring students to use maps and radios to help teammates navigate to find a variety of clues while relaying instructions to remaining team members so the mission could be solved. This mission could only be carried out one group at a time, so staff rigged up alternative team-building activities for other groups. See Figure 11 for the alternative team-building activity where groups had to move cups from one barrel to another using elastic and string. In this example, groups competed against each other to complete the task the fastest.

Figure 11: Alternative CJs team-building activity

Each of the missions relied on the students being engaged in some form of planning, deciding what roles they would play in the activity, as outlined previously, and evaluating their performance and the activity.

Another example of an activity within a mission was when students were tasked with setting up an obstacle course with several lanes. Remote control cars were placed at the start of the course and one team member blindfolded. The aim of the session was to be able to get the remote-control car, carrying a key, from one side of the course to the other, avoiding the obstacles. The key would eventually be used to open a padlock for another part of the mission. The blindfolded students drove the car, and rest of the team members were responsible for guiding the driver through the course to arrive at the finish point.

As highlighted above, at the end of the missions there were feedback sessions where points were allocated to the students for positive work by CJs staff and development areas were discussed using the 'what worked well', 'even better if' technique. Learning was correlated with several of the overall aims of the CJs week, some of which were displayed in the classroom, and linked, where possible, to the individual school's mission and vision statements.

Many of the missions were indoors, meaning that weather did not play a part in the success or otherwise of those missions, however, some exercises, such as the map and walkie talkie session, were often on the school field (where there was such access) so groups were outside for a period. This session could be more challenging depending on the weather at the time of that particular mission. Another example of this would be when one of the missions involved erecting an outside shelter with a small number of items (tarpaulin, tent pegs) in a limited time span. While the objectives were to improve teamwork and communication, an exercise carried out in the wet or cold weather made it a much more demanding one and could impact on the group's enthusiasm or otherwise to participate.

Preparation and tailoring of the programme for each student group

The CJs project staff contacted all schools ahead of the intervention to discuss the school's specific requirements. These conversations took place via phone or email and set out the specific staff and room requirements. Although the CJs programme was based on a core set of missions, each also had an extra set of 'challenges' that could be added to increase their complexity should the teams find the missions too straightforward. Examples of this complexity included introducing more obstacles for the team to negotiate or making one of the team members sustain a 'casualty' to see how they responded or requiring team members to carry extra equipment as part of the tasks. Conversely, where teams found the missions too challenging, mission plans included a suggested list of extra support that could be brought in, such as increasing the time for a team to complete a task or having fewer resources to navigate. CJs staff were expected to make judgements about the level of challenge for each group and adjust their missions accordingly.

Philosophy underpinning the programme overall and how specific activities were run

As outlined in the Section 1 TIDIER framework,[15] CJs describes itself as 'one of the UK's leading educational providers', its unique selling point being the utilisation of the expertise of former military service personnel and others with educational backgrounds to improve student outcomes, particularly the most disadvantaged children and young people. Set up in 2009, CJs has an ethos of 'no child left behind'. CJs programmes are designed to support students in any educational setting. Their specialism is in behaviour management, the development of a 'growth mindset', and the promotion of life skills education. CJs has a range of different offers and programmes; at the start of the trial in 2018/2019 these included:[16]

- the 'Essential Pack'—where CJs staff work with students in breakfast, after-school clubs, or lunchtime missions;
- the 'team pack'—where students engage in 12 journeys over a period of a term; journeys have a character education or life skills curriculum focus; and

[15] Better reporting of interventions: template for intervention description and replication (TIDIER) checklist and guide | The BMJ.
[16] Since the start of the trial the programmes that CJs offer have been developed further and the most up-to-date programmes can be found at www.commandoejoes.co.uk.

- the CJs 'Elite Commando' package—which offers a full day of intervention for a school for 12 months, where CJs staff work in a school to offer life skills and character education.

All the options can be tailored to an individual school's needs and all offer materials, resources, and training for school staff as part of the various packages. See Appendix N for an example of one such package. This underpinning philosophy of the programme was essentially the same in the trial intervention, the difference was the mode of delivery—one intensive week-long model rather than spread over a term or an academic year.

Experiencing the adventure learning activity

As highlighted above, the CJs programme took place over a five-day school week. The participating students were removed from timetable for the full week and expected to attend each day. The week-long model was identified by some teachers as being an enabler to the project's success by allowing students to immerse themselves in the experience.

> *'Having it as a full week allowed you to get it in to the kind of, like, mindset and routine, so I think the key things about working together and how to vocalise opinions and ideas and things like that, so they had that week of that' (SBL, Case B, CJs).*

Contrastingly, other teachers felt the overall impact of the intervention may have been greater if the project had been run across a longer period with larger gaps in between CJs school visits. It was suggested that this may strengthen engagement and focus.

> *'I think that would be a better model when it's just once every couple of weeks or something like that, once a half-term … Firstly, it means the students aren't stuck in the same group all the time for the entire week, which I think was difficult for them. But it also means it adds a bit of excitement for them because they've done one or two and then when the next one's coming up, they [think], "Ah, great! I get out of maths next week and I get to do that instead"' (SBL 8, CJs).*

This proposed change in the CJs delivery model may have been prompted somewhat by the declining levels of engagement seen in some schools as the week went on. It was suggested that the repetitive nature of the CJs missions and the corresponding reflective tasks may have contributed to this decrease in student focus. Some teachers described the students as 'getting fed up' and 'bored' towards the end of the programme, with some students going as far as to ask if they could return to their normal lessons.

> *'It got to a point where some of them said, "Sir, actually I want to be in my lesson", because it had lost that novelty factor. If you're really telling me you'd rather be in GCSE French or GCSE maths than here then, okay, yeah! So, yeah, it did start to tail off I think and become a bit more challenging' (SBL 4, CJs).*

In addition, the lack of variety in the rooms used, due to a lack of space made available in some schools and the group of students involved, may have also contributed to the diminishing levels of student engagement.

> *'Going back to the same room all day, every day, same sort of routine, I think they started to struggle with that a bit and so maybe the Thursday/Friday were less engaged than they had been at the start of the week, just because obviously a lack of change, lack of different teachers, different people. I think they just struggled being in the same group all the time' (SBL 8, CJs).*

In contrast to this, a minority of teachers interviewed suggested that engagement increased as the week went on as the students became more comfortable with the programme's expectations and their peers. This led to an increase in confidence to try new activities and supported an environment for team working and mutual understanding.

> *'I would say the students were more ready to try new things as the week progressed and were probably more likely to listen to their classmates within the cohort, even those who they wouldn't previously have classed as a friend or had known through their other classes' (SBL 6, CJs).*

RQ8b and RQ8c: What are the responses from students and staff to their experience of the intervention? Do students [school and CJs staff] believe that the intervention has improved their non-cognitive skills?

Due to the interconnectedness of the RQ8 sub-questions we have elected to merge them with the appropriate sub-themed headings to draw out the key CJs-related findings.

Student and staff responses to the programme, how they engaged with it, and key perceived outcomes derived from it

Feedback on the CJs activities was largely positive, with both students and teachers describing the week as enjoyable and worthwhile. The content of the training was deemed by most to be well thought through and appropriate. Several of the teachers reflected that the activities had encouraged students to step out of their comfort zones and work collaboratively to achieve success, something which they may not have experienced before in the school classroom. Some school staff felt the CJs intervention had been transformative:

> *'It was terrific. It encouraged our children to step out of their comfort zone and to work in collaborative groups that they've never really had the opportunity to do so. So in lessons, you know, they collaborate all the time but not in this way, not in this manner and I think it encouraged pupils, it made them accountable really because if one part of the cog didn't work in the task then the whole thing would fail' (SBL 9, CJs).*

Response to the activities undertaken, the degree of challenge, and growth mindset

School staff reported an overall positive picture in terms of the outcomes for the young people, but pointed to differing outcomes depending on individuals' maturity:

> *'I think the majority of them did [buy in to the programme], yeah ... I think there was a couple of them who felt it was maybe a little bit too childish for them … I think it was pitched at about the right level and I would say probably 80% ... really bought in to it and 20% of them didn't—but also probably wouldn't buy in to anything' (SBL 8, CJs).*

School staff also pointed out that the wide variety of academic abilities and literacy levels within each group made some of the missions challenging for the CJs staff to deliver:

> *'They can have wildly different academic abilities within those groups, and they probably need to have more differentiated tasks … some of the kids could access all of them without any problems because basically they're very academic … I think some of it was excellent, but I think some of the students did find it difficult to access' (SBL 8, CJs).*

Like the OBT intervention, the mix of students from school to school varied considerably. SBLs followed the guidance about the percentage of Pupil Premium students who should take part in the intervention, but the variation in interpretation of this guidance, and the pragmatic necessity to find students who were willing to engage if some students dropped out, often meant that there was a mix of students in terms of ability in a group and this played out in varying levels of perceived challenge and, therefore, engagement. Consequently, there were varying views as to which type of students got the most out of the CJs intervention.

> *'I think generally your higher ability students will engage with everything in a school and they're just super keen to do well. The really low ability students loved the fact that they weren't in normal lessons and that they weren't having to do difficult academically challenging tasks and therefore they could have these little successes that they're maybe not used to, so they were really engaged. Just the middle ability girls who were maybe a bit emotionally more mature than the lowest ability but probably not mature enough to recognise the opportunity that they had in comparison to the higher ability. They were the ones who were just sitting and chatting rather than getting on with what they should have been doing' (SBL 8, CJs).*

Confidence

For most school staff interviewed, their perception was that the CJs programme had a positive impact on the confidence levels of participating students. This was evident in the improvements in participation throughout the week and was

especially marked in those who may have normally taken a step back. For one school, however, the students with the lower confidence levels actually left the programme feeling less confident.

> *'The ones that were picked based on their confidence levels or wanting to improve that side of things probably, I think, didn't necessarily enjoy it as much because all the other ones that we'd picked were over-confident … maybe a bit too much, so I think there was some conflict in that side of things that we saw. Yeah. I think that probably, in hindsight, didn't help the ones that were low on confidence because it made them have even less confidence' (SBL 5, CJs).*

The week immediately after the programme was seen as a fresh start for some of the participating students with noticeable improvements in behaviour and engagement. It is not clear, however, from the interview data collected, whether this was sustained long term. One student reported the following:

> *'The first Monday we came back, you were a bit more refreshed, like your mind was more refreshed' (Student, Case C).*

Attitude to learning, teamworking, and confidence

Some of the participating schools utilised in-house grading tools to measure any medium term outcomes post-intervention. In the case of one school, the internal data snapshot instrument compared the participating students' attitude to learning post-intervention to that gathered pre-intervention and saw 'a significant improvement in their average' (SBL, Case B, CJs). For another participating school, there was a marked improvement in *attitude to learning* for around 40% of students.

> *'As the pastoral head I was tracking attitude to learning grades for all students across the year but I highlighted those 24 separately to see if it had made any impact … For some of them they did have a higher attitude, average attitude to learning grade, for the following two months after the course … about 40% of them did seem to have attitude to learning, so not necessarily academic outcomes ... but the attitudes, so perseverance, willingness to make the effort' (SBL 8, CJs).*

For other schools the impact was observed on a more case-by-case basis following on from the intervention.

> *'I think that some of the ones that [had] behaviour issues, and I am just thinking of two of the girls in particular, were great—probably for a couple of months afterwards' (SBL, Case D, CJs).*

Student behaviour was noted as a key area of progress in the months after the CJs programme. Most schools reported that participating students had 'calmed down' in the classroom and that their overall behaviour had improved somewhat.

> *'It didn't mean that they were the perfect behaving students, but it did improve quite a lot of their behaviours' (SBL 3, CJs).*

Student behaviour during the programme was reported as an overall success by the teachers interviewed. Although some schools experienced an increase in disengagement as the week went on, for the most part behaviour was good and for a large number, was recounted as significantly better than the norm.

> *'There was no massive behaviour issues at all. There was the odd little bit of disengagement, but well into the day whereas normally those students, they could have been sent out of a lesson by the time it was 9.30 in the morning. So there was a huge difference in how they behaved' (SBL, Case B, CJs).*

In addition to this marked improvement in behaviour there was also a positive rise in peer-to-peer teamworking, and student confidence noted:

> *'They really stepped up to the plate and we did see a lot of collaboration and we did see a lot of communication and we did see a lot of confidence grow over the few days' (SBL 9, CJs).*

Encouraging reflection on learning

A key aspect of the programme, mentioned by several of the teachers interviewed, was the reflection task completed at the end of each mission. The aim of this task was to ask the students to scrutinise their own experience and identify

examples of achievement alongside areas for potential improvement. Some teachers felt that this opportunity for self-reflection fortified student participation and helped them to unpick their own development.

> *'What I noticed is … the students all immediately would just dive in and try to be the first to finish whatever the task was and then they recognised within a few minutes that actually that wasn't going to be successful and it just wasn't working at all and it seemed at the time to give them a better recognition … that actually we need to stop, we need to make a plan, we need to figure out how we're going to attack a task before we actually do it rather than just diving straight in. It just seemed to make them a little bit more reflective on how to approach things rather than just rushing in' (SBL 8, CJs).*

For others, however, the way in which the task was presented—with students completing daily written worksheets—hindered differentiation between different abilities and merely reinforced a feeling of frustration.

> *'I think varying like how you do a reflection … rather than maybe just giving them a grid each time to fill in, varying how you do so actually giving them some really specific questions that related directly to that activity to maybe focus on particularly makes what can be quite an abstract process a bit more concrete and a bit more tangible for some of them' (SBL 4, CJs).*

This issue of **differentiation** was apparent with several teachers interviewed who felt that the CJs programme needs to be more aware of the 'wildly different academic abilities' (SBL 8, CJs) present within any given group:

> *'Some of the kids could access all of [the activities] without any problems because basically they're very academic, they're really intelligent, great literacy skills and can just crack on but some of the students had much lower ability and were finding it really difficult to access it' (SBL 8, CJs).*

Relationship building, communication, and teamwork

Relationship between students and CJs staff

The quality of the CJs delivery team was identified as a key strength of the project, with most participants praising the delivery techniques or content knowledge of the instructor, for example:

> *'I thought [the instructor] was great. He was really good with the kids, the kids really seemed to get on with him and were very open with him in general and I think he was very careful as to what he could and couldn't say and could and couldn't do and he kept coming to speak to me about certain things with certain kids if he was concerned about them. I think he was excellent in his role. I was really impressed' (SBL 8, CJs).*

For the most part, the CJs instructors were described as calm, warm, full of energy, and encouraging, which allowed them to build a rapport with the students and establish an environment of mutual respect. The activities were deemed age-appropriate by most school staff and the instructor's supportive practices largely kept students engaged. For one school, this meant that by the end of the week the instructor 'had them eating out of his hands' (SBL 2, CJs). However, for a minority of schools, the *calm* approach of the CJs was viewed as a potential project weakness.

> *'I think when they walked in and the guy was a bit more relaxed and a bit more chilled, they were like, ah, I think that sort of set the tone for the week because we had a few issues with behaviour and what not so I think if he'd gone in hard at that first bit then it might have been a bit less, a few less issues that had cropped up' (SBL 5, CJs).*

The army themed style of the programme was deemed 'fun' and appropriate by most interviewees that experienced it.[17] One teacher, though, pointed out the impact of the intervention may have been greater if there had been male and female Commando Joe's staff present.

Relationship between students and school staff

There were some instances of improved staff-to-student relationships post-intervention.

> *'It has sort of helped me maintain that relationship now, now that they're in Year 10, they still talk to me about it and everything' (SBL, Case B, CJs).*

Clearly the onset of Covid-19 and moving to online learning made it very difficult to assess the impact on non-cognitive outcomes, however, SBLs did notice a positive difference in terms of confidence and relationships with staff in school:

> *'I would say probably … 20, 21 of those kids definitely were more confident around school but more confident in the right ways, were more efficient in terms of what they were doing and how they worked in school I would say, certainly had better relationships, some of them did with quite a number of their teachers' (SBL 2, CJs).*

Relationships between students

There were examples in the data where school staff had from the outset thoughtfully tried to 'engineer' a situation where students were encouraged to develop relationships beyond their normal friendship groups while at the same time feeling a degree of emotional safety. This was to ensure that those students who were less confident would engage with the intervention in the first place, as they would have at least one friend in the wider group, but the mix of students would also mean that over the course of the week they had to work with those they did not know as well or those they would not normally associate with:

> *'I tried to make sure that every student on the list would have at least one other familiar student in the group because I didn't want anyone to get excluded but equally, I didn't want to put in groups who were particularly close beforehand because then I thought that they'd just gather together and not really spread their wings as much and they'd go in that safe place with their friends' (SBL 8, CJs).*

This was clearly successful in many instances as school staff reported that students were more tolerant and respectful of each other following the intervention as they moved back to their usual classmates and peer groups. This was particularly marked in those students who were previously seen to be confident:

> *'Some of those more confident ones generally on any given lesson prior to that would have possibly been a little bit unforgiving or picking on other people … So, yeah, tolerance definitely … the respect element was definitely more evident but certainly for a good couple of months at least it was very, very obvious' (SBL 2, CJs).*

Unfortunately, the timing of Covid-19 meant that it was virtually impossible for students or staff to meaningfully comment on whether these more respectful relationships would have lasted longer, and for many schools the 'good couple of months' after the intervention coincided with the first lockdown.

Self-regulation and independence

The school staff interviewed reported a marked increase in student self-regulation during or shortly after the intervention. This was evident in the way in which the students progressed and developed throughout the course of the week. For

[17] A small number of schools had misgivings about the military associations of the programme when signing up but were reassured by the direct assurances of the CJs founder and Director that the programme was not being used to actively promote the military or encourage recruitment to it (for example).

some, this was perhaps because of an increased level of confidence and self-esteem; for others, however, this was more about the speed at which they approached a task.

> *'It just seemed to make them a little bit more reflective on how to approach things rather than just rushing in' (SBL 8, CJs).*

For many students, the CJs programme resulted in an increase in self-reflection and self-restraint meaning those who may previously have 'shouted out' in class were becoming calmer and more considerate. The positive teamworking increased and students appeared to be in more control of their own behaviour.

> *'I do think that the students were trying to engage with the reflective tasks more towards the end of the week, just because they—having done some of them previously, they felt a bit more confident with it and were willing to take risks a little bit maybe and recognise that actually they couldn't get it wrong, it didn't matter. So they did seem to be a bit more keen towards the end of the week for the short-term, yeah' (SBL 8, CJs).*

Further, there was some indication that there were differences in improvements to self-regulation between male and female students.

> *'It was very much at the start, more of the practical stuff—the boys wanted to jump in straightaway and it was all a bit messy and all the rest of it but once they'd kind of got themselves organised, and you could see that each day getting a little bit better. The girls, it was probably more the opposite way round in that at the start taking things a bit more seriously and trying to be a bit more methodical about it and then becoming a long more gung-ho towards the end of the week. So, it was kind of like a shift in the dynamics on that side' (SBL 2, CJs).*

Related to this, a small number of school staff felt there were grounds for optimism: that improvements in attitude and burgeoning maturity levels could be a catalyst towards enhanced academic performance at GCSE level.

> *'That maturity aspect again, particularly for some of those boys. Again, building that focus will help them with their GCSEs, because it just gives them a little bit of a sense of purpose, and it allows them to kind of persevere through some of the difficult times and I think that's probably the case for some of the anxiety-based students as well. It is, in that sense, it was really, really good that they have that maturity now, but, like you say, again, lots of different things coming into those GCSEs but I think the focus it gave them is probably really big' (SBL 7, CJs).*

Others were less convinced that the one-off nature of the intervention could reasonably be expected to correlate to heightened longer term attainment. The following member of staff stated that while the intervention had the potential to impact on attainment, realistically it needed to be delivered in a more sustained manner (which interestingly aligns far more with the usual business model of CJs).

> *'I think it absolutely could [impact on attainment], like I said, as a sustained intervention, a weekly intervention, or even like a half-termly intervention, something like that … I think by doing that not only are the students reminded about it and … the skills, it also shows that as a school we value it so we're doing it all the time, we're doing it each week or we're doing it each half-term because we think this is important and we think it can help. As a one-off it's kind of like, oh, well that was a fun thing we did one time and then it looks to them like we haven't invested in it so it couldn't have been that important' (SBL 12, CJs).*

Furthermore, some school staff were unclear as to whether enhanced self-regulation during the CJs programme would (or could) be transferred back into the classroom, and of course the timing of the first lockdown impacted on school staff's ability to see whether this was the case.

> *'I think it's really hard for kids to transfer self-regulation from one discipline to another. So, yeah, you might be able to regulate your behaviour in that you don't shout out and you listen to your teammates in that outdoor ed setting. Does that translate to you doing the same in a lesson?' (SBL 6, CJs).*

RQ9: What approaches have schools from the ITT groups implemented throughout Year 9 and KS4 to build upon the initial intervention? How and why have these approaches been taken? What are the experiences and responses from students and staff?

As has just been outlined in detail, the IPE findings strongly suggest that both the OBT and the CJs programmes were perceived to have engaged, inspired, and motivated most students to at least some extent. Therefore, it was not unreasonable for there to be optimism that altered student attitudes to learning—in combination with the short-term acquisition of different non-cognitive skills—could be capitalised upon to further maximise impacts more directly connected to school through additional school-based actions post-intervention in the medium and long term. However, unfortunately the findings relating to RQ9 need to be interpreted with great caution and are necessarily limited due to the emergence of Covid-19 so close to the end of the intervention period.

The emergence of Covid-19 compromised our capacity to meaningfully answer RQ9 in four fundamental ways:

- it affected the extent to which schools were able to fully consider and implement follow-up activities;
- it removed many of the opportunities for students to be able to showcase what they had learnt within a normal school environment (this was arguably especially the case for OBT where the intervention took place outside of the school setting, making potential follow-up more abstract to make connections);
- it deprived many students of wider opportunities that might have been on offer through school, for example, Duke of Edinburgh's Award (DoE) or similar after-school clubs; and
- the wide ranging societal effects of the pandemic (for example, familial relationship difficulties, bereavements, wider social isolation, and general increases in anxiety)—make it challenging to untangle any correlation CJs/OBT might have had in relation to longer term outcomes

Therefore, this section is largely focused on what schools intended to do as opposed to what they were able to do because of Covid-19 related restrictions.

What schools planned to put in place following the intervention

For one school that experienced the OBT programme, there were urgent actions that needed to be implemented in collaboration with wider social care services to address some significant child-protection issues that came to light through at the residential.

> *'One student was a home carer …. and one student genuinely didn't know where their food was coming from at home, and things that are massively damaging to a young person, massively impacting that young person's ability to access school on any meaningful level' (SBL, Case A, OBT).*

However, our data strongly suggests that, typically, very little was formally implemented directly related to the CJs and OBT programmes post-intervention in Year 9 or across KS4. At one end of the continuum, a small number of schools stated that given there had been no formal expectation they would do anything beyond the week itself, they did nothing.

> *'There's been literally nothing … I think we kind of thought, oh, that's it, once it's done and there was no expectation to follow-up I don't think' (SBL 5, CJs).*

Yet, most did attempt to do something, at least shortly after the intervention took place, but this tended to be limited to:

- some form of one-off showcase—for example, a presentation to the rest of the year group (or whole school) during an assembly or the creation of a noticeboard display with photos taken from the week, with some wider explanation of the activities and the purpose of the week;
- light touch, one-off feedback to wider staff as to how the week went—as part of a staff meeting, twilight session, or a feature in a staff bulletin; and
- re-engagement with the student journal—a number of staff referenced attempting to get students to complete outstanding sections of the journal soon after completion of the programme.

'I think that they met … to complete their journals, to see if they could compare pre and post, but I don't believe anything else has been done' (SBL, Case F, OBT).

The data also suggested that most participating schools aspired to undertake more follow-up activities, but the restrictions imposed due to Covid-19 largely prevented these coming to fruition. Of course, there were exceptions to this, which were in-part linked to the pre-existing levels of wider enrichment activities that schools could signpost and encourage reinvigorated or newly inspired students to benefit from.

'Some of those kids you would never imagine they would do Duke of Edinburgh because they're not those sort of kids, the outdoorsy style kids. They're doing DofE. It's amazing to see how some of them have journeyed. I would say there's quite a few kids that went and off the top of my head I can tell you now, yeah, they're now in the Combined Cadet Force or they did DofE. It was about giving them that opportunity to awaken a passion for the outdoors … for the adventure side of things and I'm glad as a school we were able to continue to provide other opportunities for them' (SBL, Case G, OBT).

However, anything more significant appeared to be relatively ad-hoc and not systematic. For example, there was some evidence of schools initially (pre-Covid-19) trying to draw together students or undertaking some form of academic mentoring scheme or at least seeing the value in doing something like that in the future to get the most out of the strong relationships forged between students and certain staff that attended the intervention.

'So, some of the times it was just getting a few of them back together to spend a bit of time with them to do a bit of counselling and catch-up stuff with them. On a couple of times, we did get them back as a select group just to give them a bit more time together just to try and get them back in to where they were for that week so that they could gel a little bit more again and do a little bit of work' (SBL 2, CJs).

The most enduring legacy of the programmes within school, however, was the positive, informal personal relationships between students and particular members of staff rather than anything formally timetabled.

'I can be somebody whose door they can knock on or I can give them, you know, if they're having a bit of a rough time with a member of staff in a particular faculty area I can maybe go and have a little chat and say, look, they were great on this so it's more about what we're doing in school and how do we get them hooked on what you're trying to get across to them because in the right environment these kids are able to absolutely flourish and do really, really well' (SBL 9, OBT).

'I think ... colleagues that shared the experience with those students were able to pick up on it and reflect on the time they had with those students, and the students were able to do the same thing back' (SBL 1, CJs).

Overall, there was limited evidence to suggest any coherent or systematic approach to what schools implemented post-intervention—both in the immediate period prior to the pandemic and certainly following it. Therefore, in most cases any medium and longer term effects in terms of non-cognitive skills or other measures detected in comparison to the control group can be largely attributed to the legacy of the week itself.

Key factors that compromised school implementation approaches post intervention

Covid-19

It is difficult to convey just how unprecedented and seismic an event Covid-19 was, at a societal but also educational level. One of the key areas of interest to the EEF when the trial was commissioned was the primary focus it had on non-attainment measures, which was in part an acknowledgement that the traditional landscape of schools tends to prioritise a relatively narrow focus on core academic subjects. This was recognised as a reality in most schools prior to the pandemic. Our data aligns with wider evidence collected in relation to school responses to the pandemic (Achtaridou et al., 2022; Crossfield et al., 2023) revealing an even greater funnelling of focus towards core academic subjects, as schools attempted to 'catch-up' for time lost in school and to prepare students as best as they could for their GCSEs. This squeeze in focus, along with the emergence of 'bubbles' made schools very reticent about providing wider enrichment activities or permitting students to engage in anything beyond core subjects, which clearly made post-intervention work connected to the trial extremely difficult.

> *'We've got a catch-up curriculum so I'm not allowing any of them out of lessons for anything really because they've got so much work to catch up on and … they're facing a critical year … it's Year 10, it's the build up to Year 11, they've started coursework and, again, trying to catch up with lost content and it's still—we've got a lot of them off' (SBL, Case E, OBT).*

Although ironically, as the quotation below illustrates, there was a recognition of the profound need to develop a range of non-cognitive skills alongside the resurrection of enrichment activities as soon as possible to assist with student wellbeing and to respond to the wide-ranging challenges of the post-Covid-19 world more effectively.

> *'I mean, at the time [I] really liked the idea, really up for it. But with COVID … there are so many barriers in the way now; it's kind of took a step back. But … once we're out of the situation I think he'll be well up for it again and it is something that we definitely need, especially for the challenges that we've got now from COVID with learning gaps. Some students have gone backwards, and I think it would make a huge difference so these sort of projects, once we're back on to a bit of normality, I think we'd definitely be up for doing things like this again, definitely' (SBL 3, CJs).*

Below, we draw on further illustrative examples to show the disruptive affect Covid-19 had on pre-planned activities or aspirations intended to meaningfully build on the learning, skills, and relationships nurtured during the respective week-long programmes.

> *'We met them informally in the end of January just to have a quick chat with some of them. We chatted to, I think, two or three at a time just to say, "Are you okay?", "Did you enjoy it?"—stuff like that … Then after that COVID had gone down we never really had any chance to do anything more and it's kind of just drifted' (SBL 7, OBT).*

A further specific example of what Covid-19 curtailed is drawn from one school that experienced the OBT programme. Two students had been nominated to return to the centre where they experienced the intervention the following summer at a greatly reduced cost, in recognition of how well they had applied themselves during the week. However, despite both students being inspired and committed to undertaking this opportunity, it proved to be impossible due to lockdown restrictions. The impact this had upon the individual students is unknown, but it may well have stymied their enthusiasm and have had wider implications for their non-cognitive skills. One OBT strategic lead lamented the opportunities lost due to Covid-19 and articulates some anxieties about the potential for students being deprived of a range of openings to cement and build upon the learning from the programme.

> *'Let me give you then a bit of my fear … the fact that COVID hit where it did and obviously young people were then working remotely from home and then re-joining the education system post-lockdown, there have been some serious gaps in what schools normally do … all the normal type of celebration type of events that schools might have done, what's a shame for me is that some of just the normal stuff that schools will have done without us asking for it won't have happened. So, the students getting up on stage at the next assembly to say well done, or a tutorial happening where children get to talk about their experience' (Head of Centre, OBT).*

There was plenty of evidence from staff and students to validate some of the concerns previously outlined. Below are just two illustrations of how Covid-19 deprived students of a range of wider enrichment opportunities.

> *'I mean, we tried to add a few extra things. So, we also have a naval cadet unit within school, so we've tried to—obviously they do a lot of outdoors things and go on excursions to boats and things like that, obviously that's not happened during lockdown … we normally … steer perhaps certain characters within that group towards that to give them that kind of experience of being out of school and learning, different modes. Also, we have a Prince's Trust group that do that, and we've also introduced the DofE award, again, you know, similar types of activities, getting them outdoors. So, there's a few things we've introduced since … with the lockdown for most of spring and all of summer term it has been difficult to put anything in to place and now with the new restrictions that we're working with in school in terms of not being able to mix students from different year groups it's difficult to do some of the things we planned' (SBL, Case I, OBT).*

> *'Not signed up to the DofE. I want to, but I have to wait. I missed it when cadets did it this year' (Student, Case H, OBT).*

These findings are significant given that both CJs and the OBT included post-intervention input from schools in their respective TOC's but also because the related background literature strongly suggests that the impact derived from

adventure learning approaches tends to accumulate over time. Unfortunately, owing to the disruptive effect of Covid-19, many of the things schools would have reasonably expected to have built upon were not possible to implement or offer.

Limited clarity about post-intervention expectations and lack of school engagement

Putting to one side the unparalleled disruptive effect Covid-19, there is evidence to suggest that a combination of uneven school buy-in to post-intervention planning and some insufficient steer from the providers about expectations post-intervention made it doubtful the programme would be built upon as effectively as it could have been, even if there had not been a pandemic. This played out slightly differently for each intervention.

The CJs programme had comprehensive provision built into its ToC to train the whole-school staffing about the principles of its programme and to discuss and provide guidance about ways to capitalise upon it.

> *'A key part of the underlying ToC for CJs was to train as many teachers as possible on the theory of change ... The breakdown of the training session was we do a workshop on … metacognition and self-regulation … character education … Then we model the lesson to them ... Then we did a workshop to say how do you think this could work in school? It can link into history or geography, it could be cross curricular, it could be an after-school club, you can use it for the Duke of Edinburgh programme, you know, this is yours now, go and use it' (CJs Lead).*

However, as has been outlined previously, this was not delivered with fidelity, with only very small numbers of schools taking up the offer for whole-school training. Even where it was run, the data suggests that only small numbers of staff attended. Staff interviewed frequently stated there was not capacity within the school timetable to make this happen.

> *'We were offered [the training], however, we'd already filled in all of our CPD twilight time for our staff so we couldn't make it something compulsory for them and as it wasn't something that we were necessarily going to continue with we were a bit reluctant to ask them to commit their time to something that we may not pursue' (SBL 4, CJs).*

This meant an integral part of the intended delivered programme was not fulfilled and a potentially powerful mechanism for building on any short term outcomes realised was underutilised. One of the CJs Strategic Leads powerfully outlines the variation in commitment to the project post intervention, remarking that not only did many schools not take up the offer of whole-school training, they also did not engage in any of the legacy resources.

> *'The schools who were systematic, who were brilliant, had a plan; we worked on a plan with them for moving forward whereas some schools were just, like, "Brilliant, thanks for the week, we've got to go." Some schools didn't even want the packs, so we said we've got the packs for you, and it was like, "Yeah, just send them through." I know they've not been opened … maybe in hindsight it's a lovely thing but should we have been a touch more firm with the schools about this and let them know that this is a requirement of the programme? Maybe so. Would that have put some schools off? Maybe. But yes, it was certainly an element that was missing' (CJs Lead).*

In terms of the OBT, post-intervention consideration appeared less prominently built into their ToC. Although there was an expectation that schools build on the programme, precisely what this was meant to look like was not clear and seemingly rarely explicitly discussed. The focus of the programme was almost exclusively on the week itself. The following quotation from a strategic member of the OBT illustrates quite starkly the lack of awareness of what goes on at school post-intervention; their input is clearly demarcated at this juncture.

> *'Unless we have an ongoing relationship with a school [that is, future business] then we very, very rarely hear how that's gone. Which all we can do is set it up. Some of the schools are like, "Yes, we're definitely going to work on this, we will use that in assembly, or we'll do that further down the line" … it's very much whatever they do at the end there is how their instructor has interpreted their learning for the week. It's very personal to that group, that individual' (Senior Instructor, OBT).*

While it is entirely appropriate that school staff be allowed to tailor their post-intervention approach to best fit their needs and avoid being overly prescriptive it nevertheless felt that more could have been done to draw out expectations and to share previous instances of good practice. Although there was evidence of conversations happening throughout the

course of the week between the OBT and school staff about transference, there did not appear to be any additional resources or guidance that could be utilised in the classroom. This feels like a lost opportunity, especially as the OBT intervention was delivered in a more removed and abstract context from a school site. More could be done to equip or guide schools to think through more effectively what the post intervention approach should be; at a minimum, more signposting to best practice examples or a check-in would be potentially very valuable. There certainly appeared to be an appetite from some schools for a bit more scaffolding.

> *'I would have liked … a little bit more sort of continued intervention afterwards. I know that … they sort of encourage you as a school leader to continue on with some intervention post Outward Bound. I think that there maybe could be … a zoom chat with their team leaders, a couple of months after or something, I think that would be really powerful for the students that were involved, to sort of have a little bit of an input from Outward Bound themselves, after the intervention, rather than it just being left to school staff to do the after outward bound activities' (SBL, Case C, OBT).*

Given the difficulties with wider school engagement, perhaps longer lead-in times would have been beneficial to increasing attendance for the CJs whole-school training event. Alternatively, both CJs and the OBT might wish to think of less intensive ways of getting wider staff buy-in to help motivate and inspire schools to implement post-intervention actions: perhaps abridged online videos, infographics, or case studies that showcase what and how other schools have sought to build upon the activities of the week that were delivered. There might also be potential to tweak the running of the week's delivered sessions to allow more space for the SBL and other relevant school staff to explicitly discuss and work through a vision and plan for post-intervention activity—ideally this could be augmented with a subsequent check-in from CJs or OBT staff to discuss progress to avoid momentum being lost (the emergence of virtual meetings over the pandemic potentially opens up a relatively low-cost way forward).

Staff movement and role continuity

One further barrier to the implementation of post-intervention activities was that responsibility for continuing learning often sat with a single passionate individual: that left the programme vulnerable to staff changes or movements (either leaving the school or being focused pastorally on a different year group, for example).

> *'I'm now leaving, so I've got a new job with another school now. When I go to my new school, I would definitely be suggesting that this is something that as soon as the school is on a bit of a stable footing, they will be trying to introduce this programme of, okay, identifying the most challenging students, doing something for them like a trip like this at the right time of year. I personally think it's a great thing. I am not convinced it's going to stick around when I go because there isn't anyone who has this. It's not really a whole-school responsibility. It's not really embedded within the culture of the school, so the chances of it dying a death I would say are very high, which is a shame' (SBL, Case A, OBT).*

Conversely, where there was staff continuity, and schools were able to thoughtfully place appropriate staff in to support the students in the intervention, then that member of staff would then be well placed to offer appropriate follow-on work post intervention. The following example comes from CJs but there were similar issues to consider with the OBT too:

> *'You're not just throwing any old member of staff in there just to help with a timetabling issue or something like that … Yeah, no, absolutely because then you get that link that you can then, you know, whether it's through pastoral links or using curriculum time to develop further projects throughout the year or, you know, get-togethers, whatever it is, however you want to do it, you've got that link there as well and there's the consistency of it I think as well' (SBL 2, CJs).*

RQ10: How have schools in the control group used funding from the trial to support student learning?

As detailed in the methodology (Section 2), control schools received up to three incentive payments of £500, dependent upon acceptable engagement in each of the data collection periods. Control schools were given a broad steer to spend the money on 'enrichment' related activities focused on the 24 students signed up to the trial but to avoid the OBT or CJs or similar adventure learning type activities.

Due to Covid-19 related disruptions, control schools varied as to whether they managed to use the incentive money and whether they had been able to stick with the plans they originally had. All control schools (n = 32) were asked to complete

an endpoint survey to explore if and how their incentive money had been spent but only 15 responded meaning a 47% response rate was achieved. At the endpoint survey, 11 of the control schools had spent some of their incentive money. Of those, eight had spent the money only on the 24 students taking part in the trial, whereas three had chosen to direct it towards trial students and others in the school. At this point, schools had detailed what they intended to spend the incentive money on, and the list below illustrates the range of activities:

- mentoring—one to one;
- psychological interventions—resilience training or self-confidence, external speaker;
- cultural capital—museum trip, university trip, city trip;
- recreational activities—cinema, meals, music lessons;
- outdoor activities—tree planting, outdoor walks;
- sports—boxing;
- travel—coach hire and travel for trips; and
- provision—waterproof coats, shoes.

As several schools had stated that they had not been able to spend their incentive money at the time the follow-up SBL survey was conducted (prior to the Covid-19 pandemic) but had plans to spend it that summer, an additional survey was distributed to control school SBLs to ascertain whether Covid-19 had impacted on their ability to spend the incentive money or stick to any pre-organised plans. Data was very limited: of 32 control schools, responses were gained from only nine. Of the nine responses received, three schools had spent their incentive payments, three had spent part of it, and three had not managed to spend the payments but planned to spend them in the future. The main barriers to control schools undertaking their planned activities were, predictably, related to the pandemic, for example, school closures.

Table 26: Barriers to control schools undertaking intended activities

	N
Covid-19 related school closure	3
Covid-19 related staff absences	2
Covid-19 related time restrictions	3
Social distancing	3
Other school priorities	1
Other	1

Cost

The costs have been derived separately for the OBT intervention and the CJs intervention and are therefore reported separately. However, the values used to calculate the cost of teacher cover are the same for both programmes and are based on the information that the OBT gave to schools during the recruitment period (prior to randomisation). Travel costs apply to the OBT only. During the recruitment period, to help schools make the decision as to whether they wanted to take part in the trial, they were given an estimate for teacher cover and travel costs. These were as follows:

- teacher cover—on average £180 a day; and
- travel—£75 per pupil.

The costs below are calculated using the averages supplied by the OBT.

OBT costs

For the OBT programme, the costs have been calculated for the programme as delivered as part of the trial, but without EEF and OBT financial assistance. Schools that took part in the trial received it at a reduced cost, but this is not something that always happens and a costs analysis based on such reduced costs would be misrepresentative. However, the OBT does have an assistance programme where schools in particular circumstances (related to Pupil Premium, being in an area of deprivation, or an opportunity area) can receive a 40% discount. As such, costs have also been calculated with the 40% OBT assistance programme discount to help those schools that may qualify for discount to make a decision as to whether the programme is affordable to them.

Table 27 lists the activities and resources required of schools to take part in the OBT programme. Prior to schools knowing which arm of the trial, they had been randomised to, a member of staff from each school was tasked with identifying which pupils in the year group fitted the trial eligibility criteria. The time taken to do this was not reported so this is not included in the costing. For the Adventure Learning trial, the programme was delivered at one of five OBT centres over five days (Monday to Friday) for up to 24 students per school. The delivery of the programme was undertaken by an experienced OBT member of staff, with two members of staff from the school accompanying the students. The latter varied in their job role, but this information was not collected systematically. Future cost evaluations would benefit from systematically collecting this data. In addition, teacher cover was required to replace the accompanying staff.

The costs of the OBT intervention, as delivered for the trial, are related directly to pupils travelling to sites and the cost of participation—all one-off costs. The materials needed for the OBT tasks were supplied by the OBT at each of the respective centres. Provision also included student accommodation and bedding, meals for both school staff and students, OBT staff costs, and other overheads such as heating and lighting of the accommodation. However, students did need to be dressed in appropriate clothing, which may have been an additional cost to some parents. From the IPE data, some parents had struggled with this, which resulted in the schools having to provide the clothing required. This isn't information that was routinely collected from schools, but some schools chose to inform us of these issues voluntarily.

Table 28 presents the costs for the OBT programme as a one-off programme without recurring costs. As such, this is just calculated for one year, as opposed to being modelled over three years. The cost of the OBT intervention delivered as part of the trial and without the EEF and OBT discount (which was given to schools that took part in the trial) for 24 students receiving the programme in a year was £14,400 per year, working out at £600 per student per year. When using the EEF costs rating, this is classed as a moderate cost intervention. As the OBT does offer an assistance programme, which reduces the cost of their programme by 40%, the costs were also calculated incorporating this discount. With the OBT 40% discount the programme costs £10,032, working out at £418 per student a year (Table 29), again a moderate cost intervention according to EEF guidelines.

For the OBT costs, it is important to note that they have been calculated based on cover for two teachers attending the residential component. The calculations assume that cover costs on average £180 per day (as this is what the OBT told

schools during the recruitment period). We do recognise that some schools may have sent a SENCO or TA and, if so, the costs would have been somewhat less. In addition, the costs of teacher cover also depend on the school's geographical location as teacher cover can be more expensive based on location (for example, London).

Table 27: List of school activities and resources required for the OBT programme

Category	Item
Pre-randomisation school preparation	SBL to identify eligible students
Programme costs	5-day residential—intervention costs
	Transport to and from OBT
Class cover	2 members of school staff to attend residential/staff cover

Table 28: OBT costs without discounted rates

Item	Type of cost	Cost
5-days residential/intervention costs	One-off	10,920
Transport to and from OBT	One-off	1,680
2 members of school staff to attend residential/staff cover	One-off	1,800
Total		£14,400

Table 29: OBT costs with 40% discounted rates

Item	Type of cost	Cost
5-days residential/intervention costs	One-off	6,652
Transport to and from OBT	One-off	1,680
2 members of school staff to attend residential/staff cover	One-off	1,800
Pupil identification tasks by SBL	One-off	Unknown
Total		10,032

The costs above assume that the OBT programme delivered as part of the Adventure Learning trial was conceptualised as a one-off programme by schools. This is the most appropriate method to use to the best of the evaluation team's knowledge. However, below we have also provided a narrative based on the conceptualisation of the programme as being a longer-term investment to the school. We feel this is beneficial as it gives the most credence to how the programme should be viewed. The OBT programme inspires to teach young people to 'believe in themselves', transforming their behaviour throughout school, higher education, work, and beyond. As such, we would encourage that the principles and learning schools and young people have gained from the programme should be embedded in future experiences both in and out of school.

Ancillary OBT costs

Using the example provided above and knowledge gained from the IPE data collection and analysis, there are ancillary costs that are not accounted for in the above costings—those that were not highlighted at the start of the trial meaning that data on these was not systematically collected.

School-based lead (SBL) time spent identifying the students that were eligible to take part in the trial

During the recruitment phase, school-based leads were given information on pupil eligibility criteria, which they then used to identify which students might benefit most from participation. Considering the programme as a longer-term investment that schools would run annually, this could be considered an ancillary cost. Those SBL's trained to perform this task this would not need to be re-trained year-on-year, barring occasional staff turnover.

Pre-course preparation—meeting with the OBT

The OBT gave schools the opportunity to meet with its staff to develop a relationship before the programme started. This was to allow schools to ensure that the programme met with their expectations and aims (aspects of the residential were tailored to meet the needs of the school)—for example, that it aligned with their behavioural policy and key priorities in terms of what they wanted to achieve from the programme. Not all schools took advantage of this opportunity. However, from a longer term perspective, if schools fostered this relationship with the OBT in year one and set out their schools' priorities, the following year this could be just updated. This represents an ancillary cost relating to work of the SBL.

Pre-course preparation—meeting with parents and students

Prior to going on the residential, the SBL met with both students and their parents or guardians to get their buy-in and consent for participation. Again, having been through this communication process in the first year, this would be less onerous (or time-consuming) in subsequent years.

We do, however, stress that for the OBT intervention to be seen as a longer term school investment, changes would need to be made to the advertisement and recruitment materials used by the OBT to emphasise this. This would include making certain aspects of the pre-residential activities mandatory.

CJs costs

For the CJs programme, the costs have been calculated for the programme as delivered for the trial but without the EEF discount to be representative of standard, non-subsidised delivery. For the trial, the programme was delivered over five days for up to 24 students in each school. The delivery was undertaken by a CJs member of staff with up to two teachers or TAs from the school sitting in on the session. Some schools provided two teachers whereas others only provided one. Similarly, some provided a teacher for the whole time CJs were delivering whereas others only provided teachers for part of the time. Teachers do not need to be present for CJs usual delivery to take place: this was implemented in the trial because of the characteristics of the students (some, for example, having behavioural issues). As the presence of teachers is not required for the delivery of the standard programme, two sets of costs have been calculated, one without teacher cover and one set including teacher cover.

Table 30 presents the resources needed from schools to participate in the programme. Prior to schools knowing which arm of the trial they had been randomised to, a member of staff from each school was tasked with identifying which pupils in the year group fitted the trial eligibility criteria. No data is available for how long this took teachers to do and is, therefore, not included in the costing. In addition, once schools had been allocated to the CJs arm of the trial, CJs offered a twilight session at each school that all staff could attend. The main purpose of this to present information about the programme and how it would be happening in their school. No data is available on the cost implications of this or how long this will have taken teachers to do, as such this is not included in the costing.

The costs of the CJs intervention, as delivered for the trial, relate only to the cost of the instructor and the programme materials—all one-off costs. The materials were supplied by CJs in the form of a 'COJO' box and printed materials. Schools also had to provide a classroom space that acted as a base for the CJs sessions, access to an indoor sports hall or large space, and access to outdoor space.

The cost of the programme would be the same each year if delivered in the same way as during the trial. CJs offers an alternative model where teachers are trained to deliver the programme, which results in the same initial investment but with less cost subsequent years.

Table 31 presents the costs for the CJs programme—as it was delivered as part of the trial—as a one-off programme without recurring costs. As such, this is just calculated for one year as opposed to being modelled over three years. For 24 students receiving the programme in one school year, the cost was £4,300, working out at £188.77 per student per year When using the EEF cost rating guide, this is classed as low-cost intervention. As two teachers are not required to be present when CJs usually deliver their programme, the cost without teacher cover has also been calculated. For 24 students receiving the programme in a year without teacher cover, the cost of the programme would be £2,500, working out at £104.16 per student per year. Again, this is classed as a low-cost intervention.

As noted, the CJs costs have been calculated on the basis that two teachers are present for behaviour management purposes. The calculations assume that teacher cover costs, on average, £180 per day (as this is what schools were told during the recruitment period). We do recognise that teacher presence is not a usual part of the CJs programme and in some cases only one teacher was present.

Table 30: List of resources for CJs programme

Category	Item
Pre-randomisation school preparation	SBL to identify eligible students
	Whole-school staff training twilight session
Programme costs	5-day intervention costs
	2 teachers for behaviour management
Facilities, equipment, and materials	Computer to be available throughout whole week (Monday–Friday)
	Indoor sports hall or large space and/or outdoor space for up to 3 hours a day (to be used for activities, or due to weather conditions)

Table 31: Costs of the CJs programme with teacher costs

Item	Type of cost	Cost
Intervention cost	One-off	2,500
Teacher cover	One-off	1,800
Total		4,300

Table 32: Cost of CJs programme including teacher cover

Item	Type of cost	Cost
Intervention cost	One-off	2,500
Total		2,500

Conclusion

Table 33: Key conclusions

Key Conclusions
1. Students that received the OBT intervention made very small or no improvement in their self-regulation 12-18 months after the intervention, on average, compared to students in control schools. Students that received the CJs intervention made small improvements, on average, compared to students in control schools. These results have a very low security rating: circumstances largely relating to the impact of Covid-19 led to very high attrition and therefore no EEF padlocks could be given.
2. Students in the OBT intervention schools showed moderate improvements in their behaviour 12-18 months after the intervention, compared to students in control schools. Immediately after the intervention students showed small positive changes in self-regulation and small positive improvements in school engagement compared to students in control schools. These findings should be interpreted with caution as they are based on samples with high attrition at both timepoints.
3. Students in the CJs intervention schools showed large improvements in their behaviour 12-18 months after the intervention, compared to students in control schools. Immediately after the intervention students showed moderate positive changes in self-regulation and moderate positive improvements in school engagement compared to students in control schools. As above, these findings should be interpreted with caution as they are based on samples with high attrition at both timepoints.
4. The OBT intervention was delivered as planned and the provision and staffing were viewed positively by most staff and students. Activities provided opportunities for students to re-engage with school staff and nurture peer relationships through teamworking. The level of challenge was hard, but achievable, allowing students to experience success, increase their sense of self-worth and to advance a growth mindset. In interviews with school staff and students it was reported that for some students involvement had a profoundly positive impact in terms of their self-confidence, openness to new opportunities and greater long-term aspirations. However, for a small minority, the level of physical challenge reinforced negative feelings of self-worth and inability to achieve.
5. The CJs intervention was largely delivered as planned and the programme and instructors were generally positively received. The scenario-based missions were described as high quality and authentic. Compared to the OBT programme the level of physical challenge was lower with the activities being less physically demanding and delivered at their school. Activities were designed to facilitate students to assume and share different roles across missions, strengthening peer relationships, improving teamworking and communication; whilst also encouraging independence. For some students enthusiasm for the mission-based tasks decreased over the week. This may have been different had the programme been delivered through weekly sessions over a year, as is typical for how the CJs intervention is delivered outside of this evaluation.

Impact evaluation and IPE integration

Evidence to support the logic model

The original logic models were similar for both interventions, the main difference being that the OBT intervention was delivered off site as a four-night, five-day residential whereas the CJs intervention was delivered on the school site. The logic models hypothesised that participation in adventure-based learning would result in improvements in self-regulation of learning, student engagement, and behaviour.

OBT intervention

For the OBT intervention, the evidence to support the logic model as it stands is mixed. When students were assessed in the two weeks following the intervention an improvement in self-regulation was observed. In addition, improvements in overall behaviour—and specifically conduct problems—were observed at T3. There was also evidence to show that even though there were no effects on student engagement immediately post-intervention, improvement relative to controls were observed at longitudinal follow-up. One possible explanation for the lack of detectable increase in student engagement very shortly after the intervention concluded was the markedly different range of activities undertaken in a very contrasting environment to that of a school. Given the relatively minimal amounts of post-intervention follow-up indicated, it is not necessarily surprising that students may have experienced some initial difficulties adjusting back into the more structured, prescribed format of a typical school day that was quite different to the week experienced at the OBT centres. It may be that more time is required for the benefits of the OBT intervention to be realised in school,

compared to the CJs intervention, because of the need to transfer learning between different contexts. Further research would be required to increase confidence in this hypothesis.

One of the key inputs in the OBT logic model was that the actions of schools both pre- and post-intervention would contribute to the improvements in self-regulation and lead to higher levels of student engagement. The findings from the IPE analysis suggest that schools were unable to fully capitalise on the experience of the residential and intervention—partly due to Covid-19 and associated lockdowns and school building closures.

At this stage we are limited in the extent to which we can draw on evidence to support the assumption that the OBT intervention led to improvements in academic attainment. This will be explored in the follow-on report in 2023 after the receipt and analysis of the students' GCSE outcomes. Nevertheless, the IPE data indicates many staff from OBT schools felt that their students' participation in the intervention was likely to have had a positive impact on their attainment in the long term. A variety of reasons were posited as to why this might be the case, including short term evidence of increased attendance, reduced behavioural incidents, improved relationships with school staff, and enhanced learning attitudes due to increased levels of self-regulation, independence, and self-motivation.

However, findings from the IPE data suggest that more could be done to positively influence, and cement medium and longer term outcomes showcased within the logic model. As noted, a key part of that would be greater consideration being paid to post-intervention transference of learning from the intervention into school. In the Limitations and Lessons Learned section below we outline different ways that this might be improved.

Finally, while self-regulation was a clear focus for the OBT, there were also several other outcomes that students and staff perceived to be important and that the impact evaluation did not measure (for example, self-esteem, resilience, teamwork, self-confidence, and a growth mindset). It would be beneficial—and improve understanding of how the programme is achieving its outcomes—if a more detailed logic model was developed and the short, medium, and long term outcomes were re-evaluated using different or additional measures where appropriate.

Commando Joe's intervention

For the CJs intervention, the findings from the impact evaluation at both T3 and T2 provide some evidence to support the underlying theoretical assumptions illustrated within its logic model. Improvements in student engagement and behaviour at T3 were observed alongside self-regulation, student engagement, and behaviour when assessed in the two weeks post intervention. Unfortunately, the severe disruption of the pandemic had a significant impact on the data collected at T3. In consequence, further work needs to be undertaken to provide evidence to support the assumption that adventure-based learning leads to long term change in self-regulation of learning.

At this stage the evidence we have to support the assumption that the CJs intervention led to improvements in academic attainment is limited. This will be explored in greater detail in the follow-on report in 2023 after receipt and analysis of the students' GCSE outcomes. Nevertheless, at this stage, the IPE data suggests a mixed picture in how school staff interpreted the likelihood of the CJs intervention impacting upon GCSE attainment. For some, improvements in learning attitude and general levels of maturity were perceived to potentially translate to improvements in attainment; whereas others were more cautionary, citing doubts about the non-sustained nature of the intervention and whether skills such as self-regulation learnt outside a typical classroom setting could be meaningfully transferred back into it.

One of the key assumptions of the logic model was that school actions both pre- and post-intervention would contribute to improvements in self-regulation and lead to higher levels of student engagement. While improvements in self-regulation and engagement were observed, it was identified that schools did not fully manage to capitalise on the intervention. As such, it is unclear whether further or more systematic actions from schools would have led to further improvements, but it would be plausible to suggest that could be the case. Teachers were supplied with a resource pack but it was at the school's discretion as to whether they used it or not. It may be beneficial to student outcomes if the resource packs were re-framed in such a way that emphasised, they were an essential part of the programme. For both the OBT and CJs, we feel it would be beneficial in future work to include attendance data and behavioural points data from schools. Staff from both OBT and CJs schools suggested that attendance in school had been positively affected by participation in the respective interventions. However, this was not systematically captured as part of the trial. These

could be used as intermediary outcomes, or as a proxy measure in circumstances where little resource for evaluation activities is available as an alternative for the SDQ.

Interpretation

The Outward Bound Trust intervention

The findings from the impact analysis provide evidence that the OBT intervention had a positive impact on students' non-cognitive skills, particularly shortly after the intervention had finished (T2). There was also some evidence to suggest a long term positive impact on behaviour, however, the disruptions caused by the pandemic severely compromised the quality and reliability of the T3 data and it may have had an impact on students socioemotional wellbeing and school experiences (Achtaridou et al., 2022; Crossfield et al., 2023). The T2 data did not suffer the same disruption because this was collected prior to the arrival of Covid-19 but attrition at T2 was still notable and so caution is needed in interpreting impact at both T2 and T3. The IPE data for the OBT is extremely positive in the perceived impact that both teachers and students felt the intervention had. This suggests that the OBT programme gave students that may struggle to achieve the opportunity to reframe themselves and succeed at something, allowed students to develop from a fixed mindset to a growth mindset, and seemed to alter some students' attitudes to learning. While initially the IPE data seems to be more positive than the impact data, it does allow a coherent explanation as to why some of the impact findings may have not been stronger.

From the IPE data, the OBT programme was generally positively received by staff and students. However, for a small minority of students the level of challenge was too much, which in some cases manifested in poor behaviour and them being removed from activities or needing to be collected by parents because they were too far out of their comfort zone. For a smaller subset of students, the programme appeared to be positively transformational, even beyond the parameters of the ToC. Students talked about wanting to widen their ideas, thinking about new career options, and being motivated to engage more fully with school life. A combination of the emergence of Covid-19 and lack of clarity of expectations post intervention limited the extent to which this could be capitalised upon.

For many of the students that undertook the OBT residential it was the first time they had stayed away from home, either at all or for a prolonged period, and for some, the first time they had experienced outdoor adventure activities. In addition, students may have been away from their usual friendship groups. While all these experiences can be beneficial for a young person, the cumulative effect may have been somewhat overwhelming for some.

As previously mentioned, the primary and secondary outcomes included in the evaluation appear to be more closely aligned or more evident with the CJs intervention rather than the OBT. The OBT intervention took place outside of the school setting meaning that the learning that took place needed to be transferred and used within a new context, that of school. In addition, the academic literature suggests that the positive impacts arising from involvement in residential OAL may take longer to observe. It is therefore plausible that the disruption caused by Covid-19 may have had a more profound impact of the OBT trial arm than the CJs one.

Neither OBT nor CJs schools fully capitalised on the learning that took place during the interventions; there was very little evidence to show clear and structured use (or planned use) of the learning within the school environment. From the IPE data, the reason for this is two-fold. First, the pandemic-related school closure would have prevented the school from undertaking follow-up work; second, data from both school staff interviews and strategic lead interviews shows that, for the OBT particularly, little provision was put in place for post-intervention follow up work.

Commando Joe's

The findings from the impact analysis provide consistent evidence that the CJs intervention had a positive impact on students shortly after the intervention had finished. There was also some evidence to suggest a possible long term positive impact, however the disruptions caused by the pandemic have severely compromised the quality and reliability of the T3 data. When considering the findings from the IPE data it is also clear that teachers' perceptions aligned with the findings of the impact evaluation. In addition to the outcomes that the evaluation explicitly measured (self-regulation, student engagement, and behaviour) teachers in CJs schools reported improvements in a number of other skills such as confidence, resilience, and teamwork.

The CJs intervention was positively received by most staff and students in schools. It provided students with the opportunity to further develop several non-cognitive skills, but it did appear that students were less out of their comfort zone during this intervention compared to the OBT. There were several instances where staff and students noted a 'tailing off' of interest in the missions come the latter part of the week. It is important to note that delivering the CJs intervention in one week is a departure from the usual delivery mode in which sessions are less intensive and spread over a longer period, typically a term. While it cannot be assumed that the standard delivery model would demonstrate equivalent or stronger findings than those from this trial (indeed it is entirely possible that the intensity of the programme might have been a key contributing factor to the positive impact measure findings detected), it is reasonable to suggest that the standard delivery model might have been better enjoyed by the students throughout the duration of the input.

Initial assumptions when including both the OBT and the CJs intervention as separate trial arms were that the context in which students received the intervention would influence the strength of any impact. The aims were to try and tease apart the benefits of a residential element. The impact findings have highlighted that when compared to a control group, the in-school programme delivered by CJs saw larger impacts for self-regulation, student engagement, and improvements in behaviour than the OBT intervention. These findings were not anticipated, but there are several possible explanations discussed here. First, the primary and secondary outcomes included in the evaluation may have been more closely aligned or easier to observe a change in for the CJs intervention than the OBT intervention. Whilst both interventions reported these outcomes as being something that they felt were improved because of their intervention, something about the CJs intervention being delivered in school may have made the application of learning back in the everyday school environment easier to achieve as students didn't need to apply their learning to a new context.

From the IPE data related to the CJs intervention, there were several outcomes that were not assessed as part of the evaluation and did not appear in its ToC; for example, teachers from CJs schools reported their students had developed in terms of teamwork and confidence. By not measuring improvements in such immediate outcomes, we may have missed some of the mechanisms that lead to changes in longer term outcomes.

The EEF's Teaching and Learning Toolkit on outdoor adventure learning acknowledges that the evidence base for the impact of adventure learning on attainment is weak but that students participating in adventure-based learning projects may benefit from improvements in non-cognitive (or metacognitive) skills. The findings from this evaluation have demonstrated that adventure learning can have an impact on these skills, but until the follow-on report in 2023 we are unable to link these to improvements in attainment.

Limitations and lessons learned

One of the main limitations of the evaluation is the impact that the Covid-19 pandemic had on the extent of attrition in data for the primary outcome variable and the follow-on school-based aspects of both the OBT and the CJs intervention. As formal Covid-19 restrictions hit from March 2020, this had an impact on both the intervention (activities back in school) and the evaluation. In particular, the data collection period for the T3 impact data was protracted, took place later than planned, and was affected by a high level of attrition. For the IPE data collection, interviews and focus groups took place with staff and students significantly later than anticipated and online rather than face to face. It is logical to suggest that this may have had an impact on staff and students' ability to recall experiences and the extent of rapport between researcher and participant.

One of the aims of this evaluation was to further our understanding of the longitudinal impacts that adventure learning has on students. The level of attrition seen in the primary outcome data has meant that this aim has not been fully met, and we cannot be sure whether we would have seen further evidence for effects at T3 had the pandemic not taken place.

The IPE evidence strongly suggests that in future iterations of both programmes a much greater emphasis should be placed on the importance of how the schools use the learning from the interventions delivered. It would be beneficial for both the OBT and CJs to consider building in accessible and proportionate post-intervention follow-up activity with schools and to encourage the development of a post-intervention plan. For example, the deliverer could:

- work with the school to draft a post-intervention legacy plan outlining how to capitalise on the learning that took place during the intervention; ideally this would be part of the formal programme of delivery with time set aside to accommodate this to avoid it falling off the agenda post intervention;
- determine what infrastructure would be needed at the school level to allow this to take place; and
- schedule check-in points across the year following the intervention for an instructor to meet with the SBL or students via an online platform to assess how the school is managing to implement its legacy plan and to monitor student progress; given the positive relationships forged between students and intervention staff, this might act as an additional motivation.

While the example outlined above would mean additional work for both the school and for the deliverers it would likely be beneficial for both schools and students in ensuring the right environment is established to allow impacts to continue post-intervention.

When comparing the OBT and CJs interventions, the former was more intense because of its residential nature students were away for approximately five days (four nights) including travel time—whereas the CJs intervention formed part of students' normal school day, so although both interventions took place over five days, the intensity is markedly different between the two.

Considering the points raised above, it would be beneficial to look at both interventions in more detail. For the OBT, the particular focus should be on how OBT schools can successfully capitalise on the learning back in the school environment; this would naturally relate to the development of guidance or materials to help school integration. For the CJs intervention, it would be helpful to focus on the different ways its programme can be delivered and the impact this may have. The programme CJs delivered as part of this trial was a five-day programme whereas normal practice would be to deliver it one day a week for several weeks. Further evaluation work for both programmes should take place under normal, non-pandemic conditions.

The recruitment period for this trial was labour intensive for both the evaluation team, the delivery teams, and the schools. The IPE data collection highlights this as a potential issue for schools. Teachers and SBLs put a significant amount of time and work into the selection and recruitment of students, the collection of baseline data, and ensuring consent forms had been secured for all students. This work was just to ensure schools were in the position to be randomised to one of the trial arms; a significant amount of work also followed randomisation. It would be beneficial to think through how the burden on schools could be reduced in subsequent trials of a similar size and with a similar level of complexity.

The findings from this trial lead to wider considerations for policymakers, particularly in relation to those students at the margins of mainstream education that are at risk of not engaging, not fulfilling their potential, or of being excluded. Involving adventure learning approaches within school more routinely may be part of the solution and offer a more pluralistic and inclusive approach to curriculum content and pedagogy that caters for differing needs.

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Appendix A: Effect size estimation

Appendix table 1: Effect size estimation

			Intervention group		Control group			
Outcome	Unadjusted differences in means	Adjusted differences in means	n (missing)	Variance of outcome	n (missing)	Variance of outcome	Pooled variance	Population variance (if applicable)
Self-regulation of learning scale T3 (SRL-SRS) OB v Control	17.03-17.24	+0.03	263 (489)	12.35	228 (524)	12.15	12.25	
Self-regulation of learning scale (SRL-SRS) T3 CJ v Control	17.03-17.41	+0.08	275 (368)	11.19	228 (524)	12.15	11.59	
Self-regulation of learning scale (SRL-SRS) T3 OB v CJ	17.24-17.41	-0.05	263 (489)	12.35	275 (368)	11.12	11.70	

Appendix B: Memorandum of Understanding (MoU) – Adventure Learning Study

This document has three sections:

If you have any questions relating to this document, please contact:

Daniel Cibich for queries relating to the delivery on: enquiries@outwardbound.org.uk

Sarah Reaney-Wood and/or Ben Willis for any queries relating to the evaluation on: adventure-learning@shu.ac.uk

Section A: Project Overview

What is Adventure Learning ('The Programme')?

Adventure learning ('the Programme') is a year 9 intervention which will research the elements that are most important in the development of non-cognitive and academic outcomes (for example, intense, week-long experience; challenging adventure; engagement with nature) and how the outcomes associated with these programmes (for example, increased; self-efficacy, self-regulation and resilience; improved relationships in school; behaviour and attitudes in the classroom) may link to improved attainment.

The Programme will use two established organisations in this field: The Outward-Bound Trust (OBT) and Commando Joe's (CJ's). In the OBT group, students will combine challenging, adventurous activities such as canoeing, hiking and wild camping, in an intensive five-day residential course delivered in one of five locations across Wales, England and Scotland. Instruction will be delivered by trained outdoor learning facilitators in collaboration with accompanying staff from the students' school. Learning strategies such as growth mindset theory, goal-setting and feedback will be used by instructors during the course to enhance learning.

Students in the CJ's group will similarly combine challenging physical activity with the use of metacognitive skills and instructor-facilitated reflection sessions to try to improve non-cognitive outcomes and attainment. CJ's trained instructors are military veterans, and this programme will be delivered over five consecutive days on the school site.

Aims of the evaluation

The aim of this study is to evaluate the impact of adventure learning in natural, residential, and school settings. A randomised controlled trial (RCT) of adventure learning has been funded by the EEF and will focus on the development of non-cognitive skills and attainment. The evaluation is not an assessment of individual students or schools but is about understanding how effective the programme is overall. Building on the EEF-Sutton Trust Toolkit evidence for outdoor adventure learning, the results of this research will make an important contribution to understanding how and why adventure learning programmes affect non-cognitive and academic outcomes.

The EEF regularly evaluates its projects through an established evaluation process called Randomised Control Trials (RCTs). In an RCT, participation is determined by random selection. For this project, that means each school's involvement in the adventure learning programme will depend on whether they are randomly assigned into one of the two intervention groups, OBT and CJ's, or to the control group.

It is recognised that schools allocated to the control group may be disappointed not to be taking part in either the OBT or the CJ's interventions. However, it is hoped that recognising that every school has equal opportunity of being assigned

to the intervention, a financial incentive and understanding the essential role played by control schools in helping to further understand the effectiveness of adventure learning, will coalesce to ensure equal commitment to the evaluation.

How does my school benefit?

All participating schools have the opportunity to be part of a high-quality research trial, working with experienced researchers from Sheffield Hallam University's Institute of Education (SIOE) that will provide insight into if, how and why adventure learning leads to improvements in non-cognitive outcomes and attainment.

In addition, intervention schools will benefit from heavily subsidised rates to enable 24 students to access adventure learning delivered residentially by OBT or on school grounds by CJ's.

Control schools will receive a financial payment of £1500, in 3 instalments, on completion of different elements of the study. The expectation is that after coving assessment costs, this money is put towards providing activities to enrich educational experiences, with specific focus on the 24 students identified to take part in this research.

School and student eligibility

This research is for secondary schools in England with a minimum of 20% of students eligible for student premium. Schools need to be able to identify 24 current year 8 students who are achieving below their expected levels of progress because of a lack of engagement with education and/or lack of character skills to support learning. Further information on identifying the correct students will be provided by OBT.

At least 50% of the students selected should be recognised as disadvantaged, either in receipt of student premium or through economic, social, or environmental issues known to the school. Schools must commit to providing 30% of the cost of OBT or CJ's if randomly assigned to these groups, which is £3,276 (£136.50 per student) or £600 (£25 per student) respectively. In addition, if allocated to the OBT intervention, schools must be willing to travel to one of the five residential centres (up to £75 per student can be claimed to contribute towards travel costs).

If assigned to the control group, schools will still engage in testing and must commit to not providing a similar adventure learning programme for the chosen students. These schools will be provided with a £1500 financial payment, which can be spent on any other activities (apart from Adventure Learning related ones) to enrich the educational experiences of the 24 students identified to take part in the trial, as well as covering costs for organising assessments.

Schools must be willing to identify and gain signed agreement from a school-based lead (SBL) who will be main point of contact for intervention leads and the evaluator. The role of the SBL is crucially important to the evaluation and would particularly suit a middle leader who would like to support an initiative aimed at working with external providers to raise levels of progress. SBL's should be open to new ideas, willing to track and monitor students and disseminate questionnaires and tests.

Schools must also be willing to release two staff (one ideally being the SBL) to attend the 5-day residential if assigned to the OBT intervention or to be involved in the 5-day on-site CJ's intervention. Finally, schools will need to disseminate an information sheet and consent form to students and their guardian and return all 24 signed copies to OBT.

Section B - outlines full responsibilities for all parties connected to this trial.

The research team and evaluation

The evaluation is being independently carried out by a team at Sheffield Hallam University's Institute of Education - SIOE (the Research Team), led by Professor Tim Jay.

SIOE will measure outcomes for students in all 3 groups in self-regulation of learning mathematics, as well as their school engagement and behaviour in the classroom.

Once the intervention has been completed, outcomes for students in the intervention group will be compared to those in the control group to find out whether the intervention has made a measurable difference. The random allocation of settings is essential to the evaluation as it is the most rigorous way to find out the effects of the programme on students.

It is therefore important that school leaders, SBLs, teachers, form tutors and students commit to engaging in whichever of the three groups they are randomly assigned to and undertake the evaluation tasks associated with that group.

OBT and CJs will deliver their programmes during the autumn and spring terms (no later than January) 2019/20. The majority of the requirements for the evaluation are the same irrespective of whether allocated to the intervention or control group, however there are differences. Below, the key requirements of the evaluation are outlined along with a timeline.

Timetable of key evaluation activities throughout the trial

December 2018	Return 24 signed student/guardian consent forms to Outward Bound. Memorandum of Understanding to be signed by 1) The headteacher, 2) School-based lead, 3) School administrator and 4) the chair of governors and returned to OB.
February 2019	Baseline questionnaire for OB, CJs, and Control groups (P1, FT1 & SBL1)
March 2019	Schools randomised to one of the three groups
September 2019 - January 2020	CJ/OB delivery *(3 CJs and 3 OB schools will be selected for SHU to undertake observations during delivery)*
September 2019 - January 2020	P2 questionnaire for OB/CJs (*to take place within two weeks of receiving the intervention*)
January-February 2020	P2 questionnaire for control schools to take place
January 2020	SBL2 survey to take place across ALL schools
March 2020-July 2020	SBL telephone interviews for CJs and OB schools, sub-sample of 10 each.
October 2020	General mathematics test for pupils in ALL schools
May 2020-December 2020	Case study visits will take place in a sub-sample of CJs/OB schools (10 in each)
June - October 2020	SBL telephone interviews for control schools in a sub-sample of 10
October 2020	P3 and FT2 questionnaires will be taken in ALL schools

Should additional funding be secured, ALL schools will be approached to administer P4 tests in autumn 2021

Glossary

P1,2,3: Student questionnaires

FT1&2: Form tutor questionnaires

SBL 1&2: School-based lead surveys Section B: Responsibilities

Responsibilities of Sheffield Hallam University across the trial

- Consent and ethics
- SHU will strictly comply with current legislation in relation to data processing, storage.

- Under General Data Protection Regulation (GDPR) Article 6, Paragraph 1e, the legal basis for this project is it being a 'public task'. However, in keeping with good research ethical practices, student and guardian consent will be sought for participation in this programme.
- For any qualitative data, verbal consent will be taken before proceeding.
- SHU will provide an information sheet that makes students and guardians aware of the expectations underpinning involvement in the trial.
- The research team have responsibility for ensuring that this trial has been assessed and approved by an independent ethics committee at Sheffield Hallam University.
- Data
- At all points, SHU are responsible for retrieving and processing data as part of this trial using password protection and secure transfer methods such as SHU ZendTo.
- Students will be required to undertake a commercially available general mathematics test at the beginning of year 10. This will be organised by SHU and the data will be accessed by the supplier for marking.
- For the purpose of research, the responses will be linked with information about the students from the National Student Database and shared with the EEF, the EEF's data processor for their archive and, in an anonymised form, with other research teams and potentially the UK Data Archive.
- We will not use student/staff names or school names in any report arising from the research.
- Further matching to NPD data may take place during subsequent research. For transparency, the precise terms of this data sharing will be stated in a fair processing notice, specifying the personal data (student names, student ID numbers, FSM status, KS2/KS4 attainment4) to be processed, in line with GDPR.
- SHU are responsible for the qualitative and quantitative analysis of all the data collected.
- SHU are the data controllers; however, the mathematics test supplier will be appointed as data processor for the purpose of marking outcome test papers.
- A data sharing agreement will detail the personal data to be shared, and a fair processing notice will be sent to all participating schools as per GDPR requirements.
- Full details of our data protection policies and further links can be found in our fair processing notice that can be accessed at https://www.shu.ac.uk/about-us/academic-departments/institute-of-education/research/projects/evaluation-of-the-adventure-learning-trial .
- Communications
- SHU will be the point of liaison for schools on anything related to the evaluation throughout the course of the trial.
- SHU will frequently liaise with the delivery partners and EEF throughout the course of the trial.
- Fieldwork
- All researchers visiting schools and adventure learning activities will hold a current enhanced DBS (formerly CRB) certificate.
- Setting up convenient times to undertake telephone interviews and case study visits.

Responsibilities of Outward-Bound Trust (OBT)

Financial

- Making payments (subject to compliance with the evaluation) to the control group in three sums of £500 (April 19, Easter 2020, and Autumn 2020).
- Providing up to £75 per student to each school allocated to the OB group towards the cost of travel to the OB residential site.

Communication

- Communicating with schools about recruitment to the trial up to randomisation.
- Acting as a point of contact for queries about the delivery of OB and signposting queries to CJs where appropriate.
- Acting as a point of contact for sending signed MoU's and student/guardian consent forms.

- Informing schools of the randomisation result.
- Supporting any queries to do with the delivery of the OB programme.

Delivery

- Delivering a 5-day residential adventure learning experience for 792 students from 33 schools.
- Complying with health and safety, including more detailed medical information from students.

Responsibilities of Commando Joe's

Communication

- Supporting any queries to do with delivery of the CJs programme.
- After randomisation, acting as the main point of contact for schools allocated to the CJs arm of the trial.
- After randomisation, contacting schools to arrange and plan bespoke in-school programme.

Delivery

- Delivering a 5-day in-school adventure learning experience for 792 students from 33 schools.
- Complying with health and safety.

Responsibilities of all schools prior to randomisation

To take part in this trial, all schools will need to supply the following information and/or undertake the following tasks in advance of randomisation, which will take place in March 2019.

Student/ school data and administration

- Identify 24 students to take part in the trial that meet the student eligibility criteria.
- Review and amend (as necessary) a student/school details spreadsheet (including specific testing arrangements) sent by SHU.
- Provide the name/contact details of the headteacher, nominated SBL, and a school administrator willing to act as an additional key contact throughout the course of the project (we advise a close working relationship with the SBL to assist with efficient data sharing).

Consent, agreement and ethics

- Facilitate the distribution and retrieval of student/guardian consent forms.
- Send all 24 *signed* student/guardian consent forms to Daniel Cibich (OB).
- Ensure that the memorandum of understanding is read and signed by all signatories required: headteacher, chair of governors, SBL and school administrator.

Baseline questionnaires

- Facilitate the completion of the students baseline questionnaire (P1)
- Ensure tests and questionnaires are undertaken under the appropriate conditions
- SBL to complete the baseline SBL survey (SBL1)

SBL to ensure the form tutor completes a brief questionnaire (FT1) on each of the 24 identified students.

Responsibilities of all schools post randomisation

Student testing and questionnaire

- Enable/facilitate SHU to administer the **mathematics test to** the 24 students in Autumn 2020.
- SBL to facilitate administration of two further student questionnaires (P2 & P3) under appropriate conditions.
- Additional funding is being sought to undertake a further student questionnaire (P4) in year 11 which if secured would require SBL's to facilitate administration of this questionnaire.

SBL and form tutor questionnaires

- SBL to fill in a second survey (SBL2) in February 2020.
- Form tutor to fill in a second questionnaire (FT2) in October 2020.

Telephone interview with SBL

- Telephone interviews will be undertaken in the spring/summer term of 2020 for the CJs/OB SBL's
- Telephone interviews will be undertaken for the control SBL's in the summer/winter term 2020

Student/school data monitoring

- Checking the spreadsheet of student details and informing SHU of any change in circumstances for students (e.g., withdraw from the study, leave school), form groups (e.g., change of form tutor or if students move to a different form group) and SBL's (e.g., SBL changes and their replacement's details) ahead of each data collection point.

Avoid use of adventure learning

- Do not buy in any additional adventure learning from other providers that could be accessed by the 24 students involved in the trial until the trial concludes.

Additional responsibilities for CJs and OB schools

Participation in the adventure learning programme

- Allow the 24 identified students to be excused from normal lessons to take part in the 5-day in school CJs programme (if allocated to CJs) or allow them to be out of school to take part in a 5-day residential (if allocated to OB).
- Give time to 2 members of staff to be present during the CJs programme (if allocated to CJs) or allow two members of staff to be absent from their working week to accompany students on the 5-day residential (if allocated to OB).

A subset of Commando Joe's and Outward Bound schools

A sample of schools will be asked to act as school case-studies (10x CJs schools and 10x OB schools)

- Allow SHU to observe any activities that may take place inspired by the adventure learning programme, if appropriate.
- Allow SHU to interview and/or undertake focus groups with relevant stakeholders e.g., senior leaders, form tutors, teachers, SENCO, and students.

Additional responsibilities of control schools

Financial incentive

- As previously outlined, each control school will receive £1500, in three instalments (April 19, Easter 2020 and Autumn 2020), on completion of different elements of the study.
- The expectation is that this money is put towards providing activities to enrich educational experiences, with specific focus on the 24 students identified to take part in the trial.

- Schools are requested to avoid using the money allocated on adventure learning type activities.
- As part of the evaluation schools will be asked how this money is being used.

Section C: Agreement

If the above terms are acceptable, please complete the form below, and sign and date two copies of this document, keeping one copy for your records and returning the other copy to Daniel Cibich either by post to The Outward Bound Trust, Hackthorpe Hall, Hackthorpe, Penrith Cumbria CA10 2HX; or alternatively a signed and scanned copy can be emailed to: enquiries@outwardbound.org.uk**.**

Name of School_**_____**_____

Please ensure that all signatories have all carefully read this MoU document and if unsure of any aspects of the delivery or the evaluation please don't hesitate to contact Daniel Cibich, Ben Willis or Sarah Reaney-Wood (details on page one).

Please do not sign this document until **all** of the signed student/guardian consent forms have been either sent back to Daniel Cibich previously or are being sent along with this MoU

		Date
Headteacher	Name: Signature:	
Chair of Governors	Name: Signature:	
School-based lead	Name: Signature:	
Administrator	Name: Signature:	
Evaluation manager (OBT)	Name: Signature:	

Appendix C: Information Sheet Adventure Learning

INFORMATION SHEET: ADVENTURE LEARNING

- There is moderately strong evidence that students taking part in adventure learning results, on average, in improved student progress compared to those that do not.
- Therefore, EEF committed funding and are leading this programme to assess if and how adventure learning effects character development and attainment.
- Sheffield Hallam University are independently evaluating this programme.
- 2,376 Y9 students from 99 secondary schools originally took part during the autumn term 2019.
- In each school, a group of 24 students were randomly assigned to one of three groups: the Outward Bound ® group, the Commando Joe's group, or a control group. The control group did not participate in either of the programmes but their school received funding to spend on different support for the 24 students selected. See below for further details on each group.
- For more programme information please refer to the following link: **https://educationendowmentfoundation.org.uk/public/files/Projects/Evaluation_Protocols/Adventure_Learning_protocol_v1.1.pdf**

Recap

Sheffield Hallam University is independently evaluating this programme. The evaluation aims to identify what effect outdoor learning has on character development, engagement, behaviour and attainment. The evaluation is not an assessment of individual staff, centres, students or schools but is about understanding how effective the programme is overall.

Evaluation activity for all schools includes:

- ✓ Student survey at 3 time points
- ✓ School-based lead survey at 2 time points

For some schools also includes:

- ✓ A telephone interview with the School Based Lead (SBL)
- ✓ A 'virtual' school case study visit
- ✓ Observations of the intervention being delivered

Why are you contacting me today?

Your school has been identified through random sampling. We are therefore contacting you as the SBL to request either a telephone or online (e.g., Webex, Zoom or Teams) interview, lasting between 30-45 minutes to gain greater understanding of your experience of the CJ intervention (prior to it, during it and following it) and your perceptions of any impacts it might have had on the students. Please let me know any convenient dates and times to undertake the interview by replying to this email.

The evaluation's ethical approach

This pilot evaluation has been checked and approved by the University Research Ethics Committee (UREC) - (**www.shu.ac.uk/research/quality/ethics-and-integrity**). Below we outline the key things we will do to ensure fair and respectful practices:

- Only experienced staff with Enhanced Disclosure and Barring Service (DBS) checks will undertake data collection
- Participation is voluntary and you can decide to not be involved and/or withdraw from the interview without giving a reason.
- Know that owing to the nature of the intervention your role will be named which is likely to make you identifiable. However, your name will not be used in any reports to EEF or in any related academic publications.
- You will be asked to complete a brief consent form to confirm you agree to take part.

Data protection: Confidentiality and right to withdraw

Personal data will be kept securely on a password protected University folder accessible only to members of the evaluation team. The SHU evaluation team will comply with General Data Protection Regulation (GDPR) and in accordance with the university Data Protection Policy Statement. Please refer to the link for more information: **https://www.shu.ac.uk/about-this-website/privacy-policy/privacy-notices/privacy-notice-for-research**

- All interview data will be reported anonymously [i.e., your name will not be used].
- If you decide that following your interview you wish to withdraw your data, you will need to contact the named researcher cited on the information sheet within 14 days of data collection.

You should contact the Data Protection Officer if:

- you have a query about how your data is used by the University.
- you would like to report a data security breach (e.g., if you think your personal data has been lost or disclosed inappropriately)
- you would like to complain about how the University has used your personal data **DPO@shu.ac.uk**

You should contact the Head of Research Ethics (Professor Ann Macaskill) if:
you have concerns with how the research was undertaken or how you were treated **a.macaskill@shu.ac.uk**

Postal address: Sheffield Hallam University, Howard Street, Sheffield S1 1WBT / 0114 225 5555

Outputs and what happens next: The evaluation report will be published on the EEF website, and the findings may also be disseminated at educational research conferences and in academic or professional journals. No individual students, staff or schools will be named in reporting.

If you require further information about the telephone interview, please contact:
Ben Willis (b.willis@shu.ac.uk / 0114 225 6059) or Jean Harris-Evans (J.Harris-Evans@shu.ac.uk)

THANK YOU FOR TAKING THE TIME TO READ THIS INFORMATION SHEET

Appendix D: Example consent form for OBT/CJs participants

Adventure Learning Trial (EEF)

Consent form for school staff telephone/ virtual interview

Please answer the following questions by ticking the response that applies

		Yes	No
1.	I have read the information sheet or memorandum of understanding and / or have had details of the trial explained to me and understand that I may ask further questions at any point.	··	··
2.	I understand that I am free to withdraw data provided without giving a reason. If I change my mind I should contact Ben Willis, 0114 225 6059, **b.willis@shu.ac.uk** up to14 days after the interview/data collection date. If I request to withdraw data after this point, then I understand that my data may be retained as part of the study.	··	··
3.	I understand that owing to the nature of the intervention that my role will be named and that it is likely that I will be identifiable and that quotations from me may be used in reports and/or other related academic publications. However, my name won't be used.	··	··
4.	I understand that my personal details such as my name will not be shared outside this project.	··	··
5.	I agree that the data from this interview can be used for other research purposes (e.g., writing articles in academic journals).	··	··
6.	I understand that the data from this study may be retained by Sheffield Hallam University for up to 10 years after the study has finished,	··	··
7.	I agree to take part in the interview for the above study	··	··
8.	I agree for the interview to be audio recorded and to quotes being used. I understand my name won't be used.	··	··

Name of participant	*Signature*	*Date*
……	……..…	……
Name of researcher	*Signature*	*Date*

Appendix E: Example analysis code

Analysis conducted using Stata 17.

```
mixed SRLTOTAL_T3 if (OB_CONTROL==1) || SCHOOL_CODE:
estat icc

mixed SRLTOTAL_T3 GROUP_OB_CONTROL if (OB_CONTROL==1) || SCHOOL_CODE:
estat icc

mixed SRLTOTAL_T3 GROUP_OB_CONTROL SRLTOTAL_T1 if (OB_CONTROL==1) || SCHOOL_CODE:
estat icc
```

Appendix F: Thematic coding frame (qualitative analysis for OBT and CJs)

1. School context

2.1 Motivations for school & staff involvement

2.2 Staff involved

2.2.1 SBL
2.2.2 Other staff directly involved
2.2.3 Wider staff

3.1 Selection process of students

3.1.1 Financial arrangements
3.1.2 Goals

3.2 Student characteristics

4.1 Relationships - Staff and students

4.1.a Pre-intervention
4.1.b During - intervention
4.1 c Post-intervention

4.2 Relationships - Students to students

4.2.a Pre-intervention
4.2.b During - intervention
4.2.c Post-intervention

5 Pre-intervention phase

5.1 Pre-intervention activities
5.2 Drop out or exclusion prior to intervention

6 Intervention activity

6.1: Activities + Degree of 'stretch'
6.1a: Groups split
6.2 Student engagement and behaviour
6.2a Drop out, exclusion during or after
6.3 Staff support and extent of involvement
6.4 Quality and effectiveness of intervention and staff
6.5 Improvements

7 Post-delivery follow up

8 Short-term outcomes (during or shortly after the intervention)

8.1 Meta cognition or self-regulation
8.2 Other

9 Medium-term outcomes

9.1 Student engagement and attitude
9.2 Behaviour and attendance
9.3 Other

10 Longer-term outcomes

10.1 Attainment
10.2 Other

11 Variation in outcomes

11.1 Sub-groups
11.2 Specific examples of individual impact (success)

12.1 Enablers

12.2 Barriers

13 Other

Appendix G: Descriptive Statistics for Outcomes

Means and standard deviations

Appendix table 2 details the means and standard deviations for each of the outcome measures, at each time point and across all trial arms.

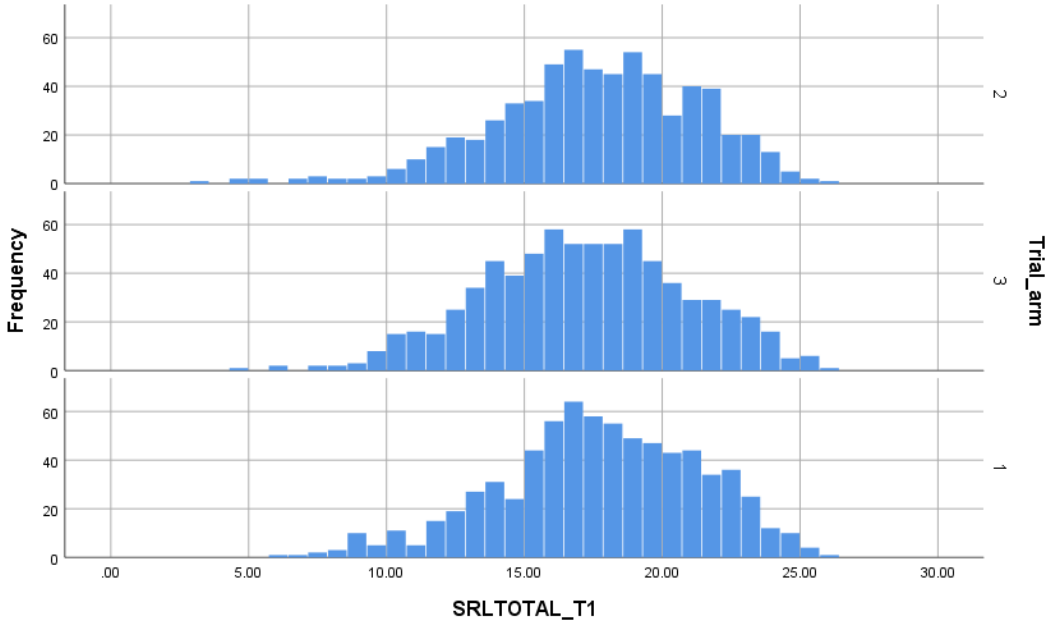
Appendix table 2

	Baseline (T1)					
	OB		CJs		Control	
	Mean	Sd	Mean	Sd	Mean	Sd
SRLSRS	17.6948	3.65	17.5701	3.66919	17.4769	3.69970
SEI	3.8664	.57789	3.8322	.57810	3.7928	.60619
SDQ	10.0098	6.78429	9.8467	6.8240	10.1713	7.33958
	Post intervention (T2)					
	Mean	Sd	Mean	Sd	Mean	Sd
SRLSRS	17.5766	3.68549	18.2208	3.45183	16.7910	3.79942
SEI	3.7534	.61372	3.7838	.57982	3.6397	.61577
	Longitudinal Follow-up (Primary Outcome T3)					
	Mean	Sd	Mean	Sd	Mean	Sd
SRLSRS	17.2429	3.50824	17.4020	3.31974	17.0335	3.47841
SEI	3.6430	.55242	3.6883	.54510	3.5339	.57171
SDQ	7.7692	5.51858	7.1048	6.07249	10.7215	7.00761

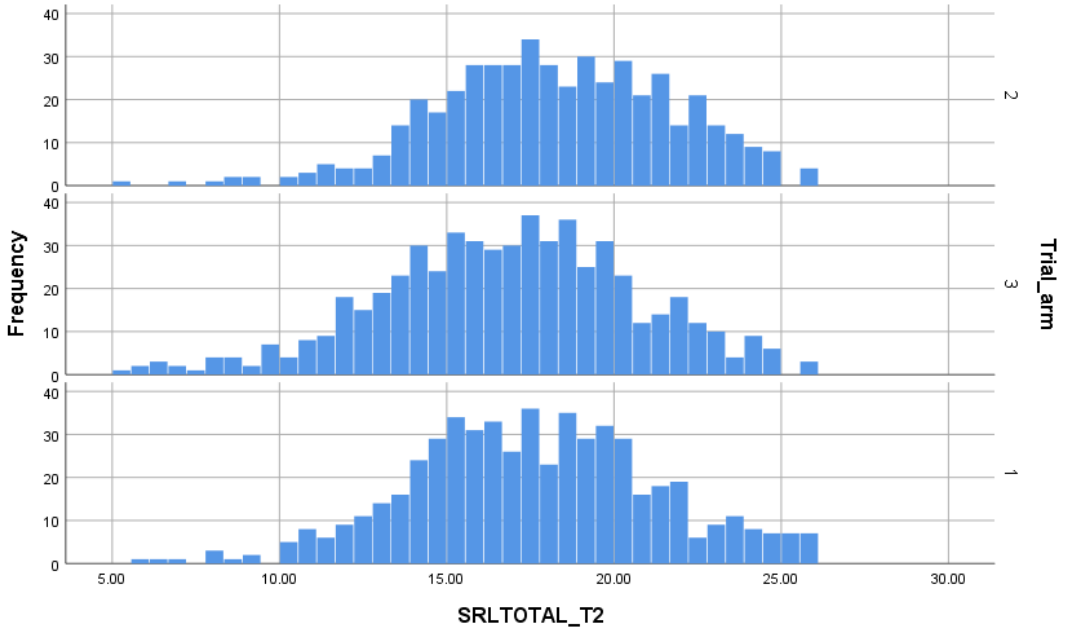
Histograms

Histograms are presented for the primary outcome of self-regulation of learning (SRLSRS) and for each of the secondary outcomes of student engagement (SEI) and behaviour (SDQ).

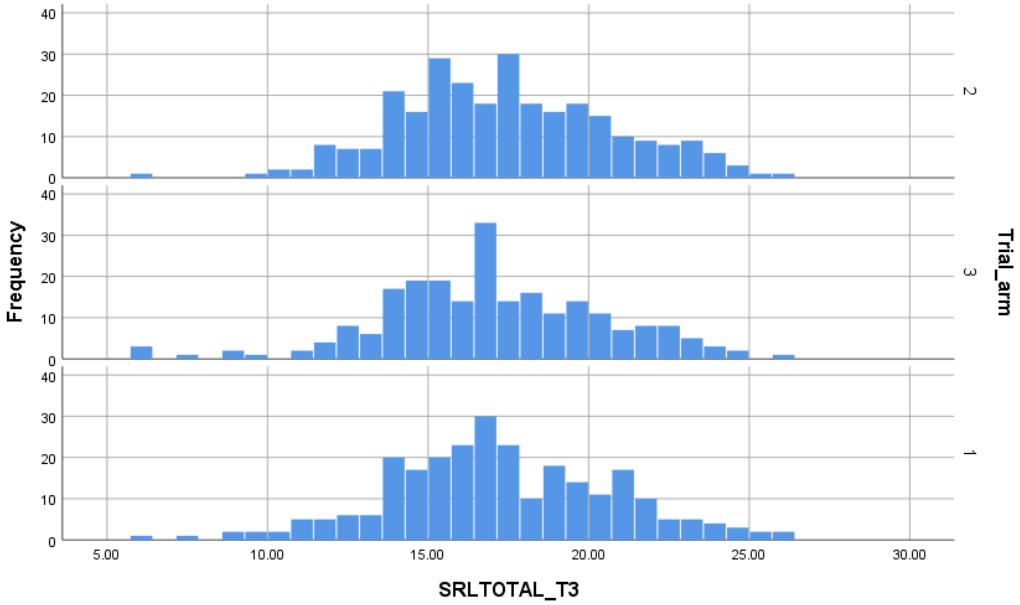
Appendix Figure 1



Appendix Figure 2

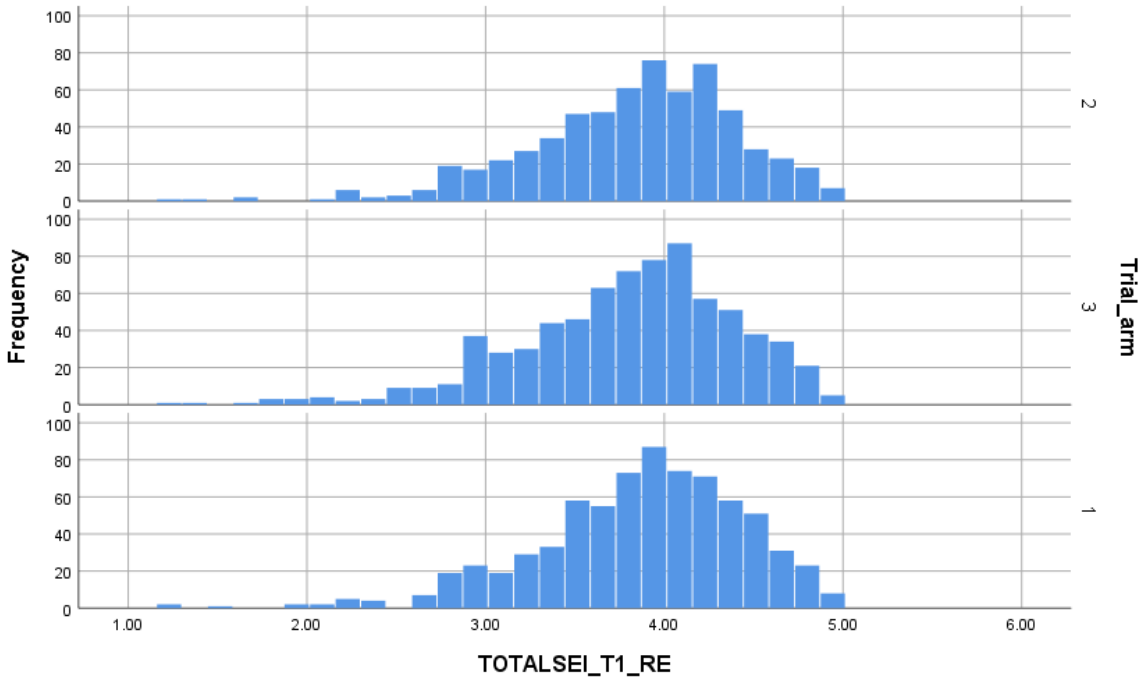


Appendix Figure 3

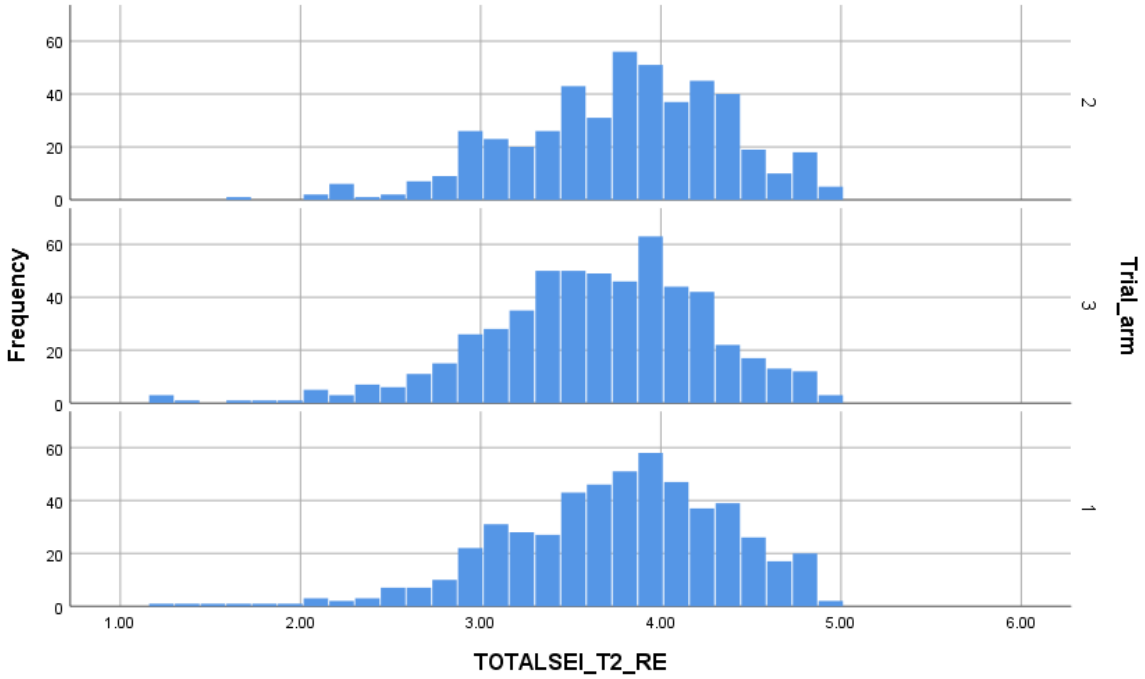


Appendix Figures 1-3 demonstrate a relatively normal distribution for self-regulation of learning total scores across all trial arms and for each time point.

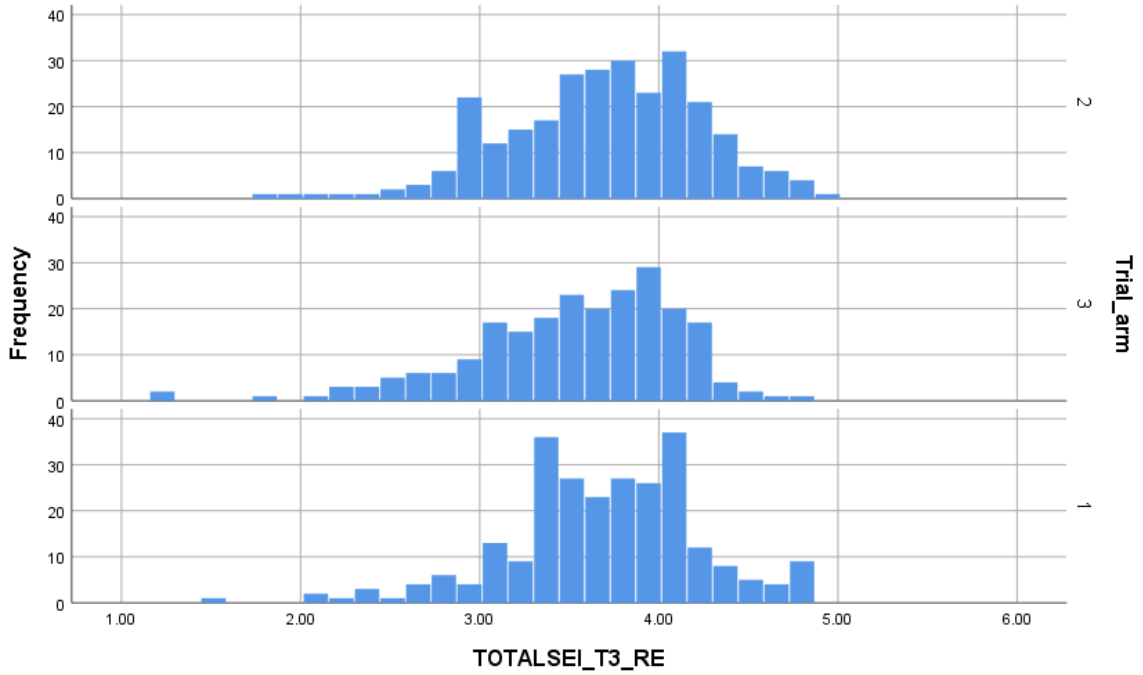
Appendix Figure 4



Appendix Figure 5

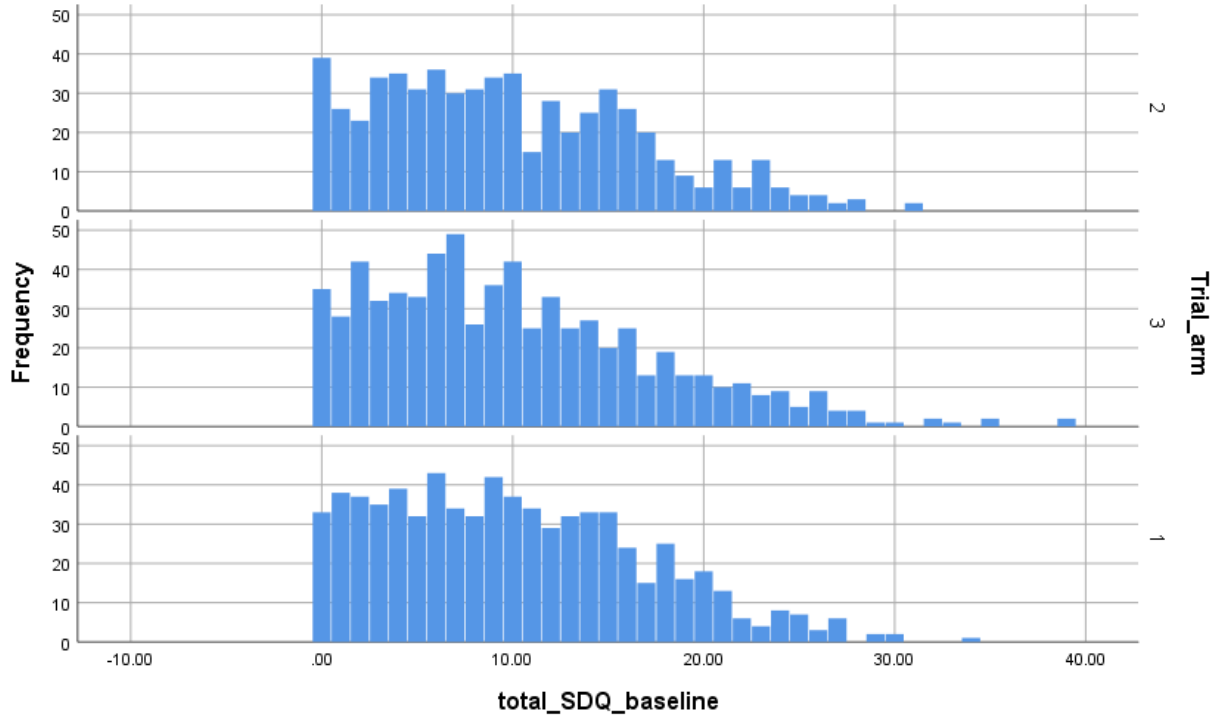


Appendix Figure 6

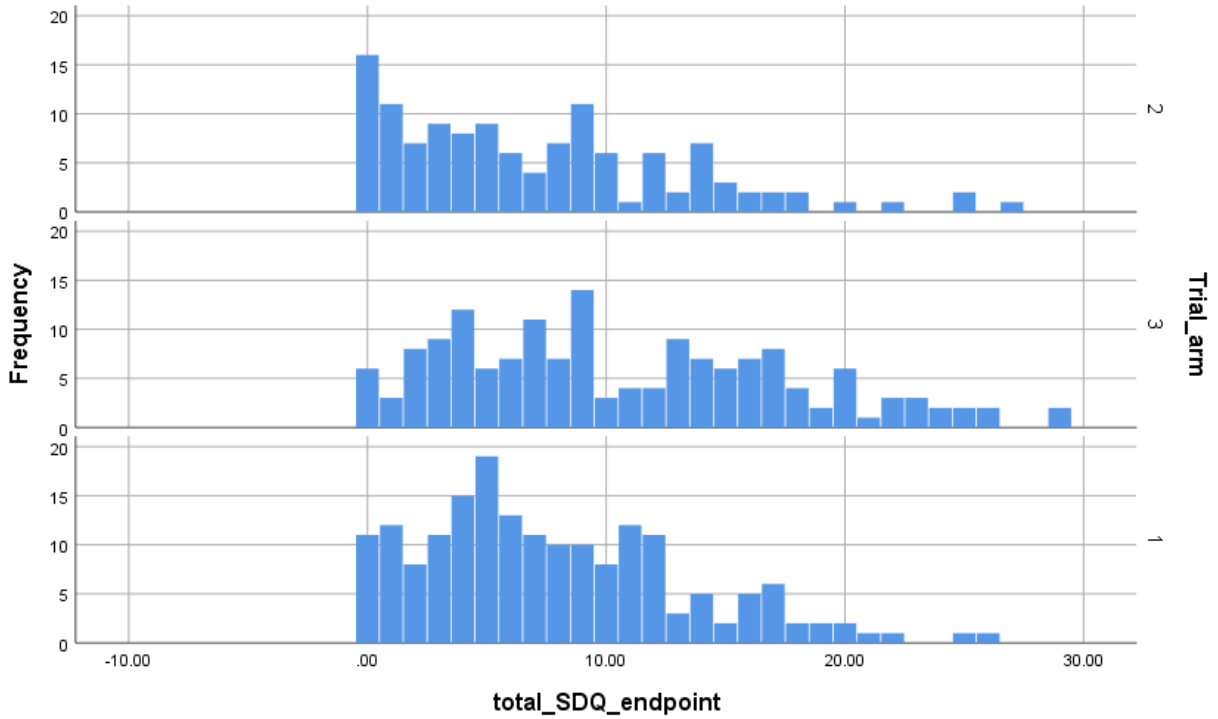


Appendix Figures 4-6 demonstrate a relatively normal distribution for total scores on student engagement across all trial arms and at each time point.

Appendix Figure 7



Appendix Figure 8



Appendix figures 6-8 however illustrate that the total scores for the strengths and difficulties (SDQ) were positively skewed at both T1 and T3 across each of the trial arms.

Appendix H: Missing Data Analyses - Multilevel Logistic Regression

Appendix table 3: Multilevel Logistic Regression Output: 1= case included in ITT analyses of primary outcome; 0= missing case.

	Saturated	Final / Parsimonious
Variable	Coef (SE)	Coef (SE)
Constant	+18.0 (11.29)	+20.4 (8.09) *
Student-level variables		
T1 SRL-SRS	-0.07 (0.02) **	-0.07 (0.02) **
FSM in last 6 years	-0.14 (0.14)	-
Gender (Female compared with males)	-0.33 (0.15) *	-0.32 (0.15) *
School-level variables		
Group Membership (compared with control)		
OB	-0.55 (0.71)	-
CJs	-0.74 (0.73)	-
Total number of students	0.00 (0.00)	-
%FSM	0.00 (3.73)	-
%EAL	+0.29 (1.93)	-
%SEN	+3.19 (4.51)	-
Type of School (compared with community/found)		
Voluntary Aided / Controlled	-1.62 (1.33)	-
Academy or Free School	-0.90 (0.71)	-
Ofsted Rating (compared with ‘good’)		
Outstanding	-1.07 (1.22)	-0.73 (1.16)
Requires Improvement	+0.38 (0.76)	-0.27 (0.69)
Inadequate	4.94 (2.15) *	4.48 (2.03) *
Missing Ofsted	2.97 (2.02)	2.59 (1.73)
Mean Attainment 8 Score	+0.05 (0.13)	-
Mean Attainment 8 Score for FSM students	+0.03 (0.11)	-
KS2 Average Points Score for KS4 student cohort	-0.68 (0.43)	-0.62 (0.29) *
ICC estimates (95% Cis)		
School	0.68 (0.57; 0.77)	0.70 (0.60; 0.79)

Statistical significance of model coefficients: * (p<0.10), ** (p<0.05), *** (p<0.01).

The first model shown in Table 1 is a saturated model that includes all of the variables used for the ITT analyses (group membership, T1 SRL-SRS) along with 11 additional variables: two at the student level (gender and FSM status) and nine at the school level (school size, %FSM, %EAL; %SEN; Type of School, Ofsted rating, Mean attainment 8 score, Mean attainment 8 score for FSM students and KS2 average points score for KS4 student cohort) . The second model isolates four variables found to be statistically significantly associated with being missing in the T3 SRL-SRS ITT analyses; T1 SRL-SRS; gender; Ofsted rating, and KS2 average points score for KS4 student cohort.

Finally, the ICC estimates from the logistic regression model are shown. The null model had a school ICC estimate of 0.76 (95% CI: 0.67; 0.84). These school-level ICC estimates highlight the strong clustering of missing data at the school level.

The clustering of missing data at the school level is likely to relate specifically to the loss of 34 of the original 92 schools in the T3 SRL-SRS ITT analyses, due predominantly to the impact of Covid-19. These 34 schools account for 766 of the 1410 missing cases (54%) in the T3 SRL-SRS ITT analyses. Across the 58 schools where some T3 SRL-SRS data was collected, missing cases are seen to be associated with gender (females being less likely to be missing), the T1 SRL-SRS score (lower scores associated with a higher likelihood of being a missing case), Ofsted rating (higher ratings associated with a lower likelihood of being a missing case) and the school level KS2 average points score for the KS4 student cohort (higher attainment associated with a lower likelihood of being a missing case).

Appendix I: Sample five-day programme extracted from OBT website

SAMPLE PROGRAMME FIVE DAY

THE OUTWARD BOUND TRUST

This is what a week at Outward Bound might look like.

MONDAY DAY 1

ARRIVE: Setting the scene. Course introductions. Hopes and fears.

ADVENTURES: *Immersion into the natural environment with jog and dip followed by group work.*

EVENING: Exploring course aims and personal responsibility.

ACTIVITIES: *High challenge activity and stargazing.*

TUESDAY DAY 2

DAY: Goals for the day. Self-confidence and self-awareness. Achieving personal goals. Try something new.

ADVENTURES: *A full day of authentic adventure in the natural environment, such as gorge scrambling, rock climbing or abseiling.*

EVENING: Effort and reward. Importance of collaboration and support.

ACTIVITIES: *Preparing and packing for overnight expedition.*

WEDNESDAY DAY 3

DAY: Confidence and resilience to overcome new challenges. Taking responsibility. Link between effort and reward. Concern and awareness for the natural environment.

ADVENTURES: *An all-day journey through the wilderness. Ascent of a mountain peak with environmental awareness tasks. Set up camp.*

EVENING: Self-reliance. Recognising achievement.

ACTIVITIES: *Overnight camp in the wilderness. A hike in the dark followed by a facilitated review.*

THURSDAY DAY 4

DAY: Awareness of the natural environment. Goal setting and taking responsibility. Contributing to working collaboratively. Resilience and reward.

ADVENTURES: *An all-day linked journey back to centre over land and water, such as a hike followed by canoeing, kayaking or rowing.*

EVENING: Exploring course aims and personal responsibility and engagement.

ACTIVITIES: *Clean up and put away camping equipment. Facilitated discussion and personal reflection.*

FRIDAY DAY 5

DAY: Personal goal setting. Recognition of achievements. Reward and celebration.

ACTIVITIES: *Group rowing. Team challenges in new groups, course review and presentations of learning.*

DEPART: 1pm.

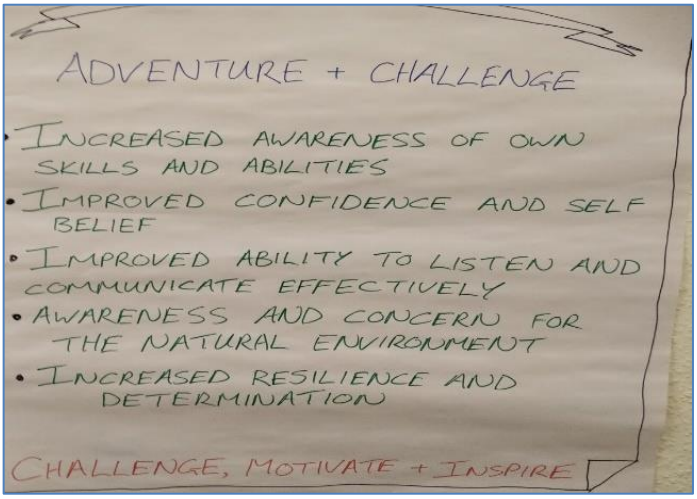
01931 740 000 @outwardbounduk #MORETHANYOUTHINK

All activities depend on centre location, weather and group ability. Instructors will develop learning as appropriate.

Appendix J: Detailed example of preparation/debriefing from observation of Day 1 and 2 of OBT delivery

Prior to visiting the site

In advance, of arrival, the Course Director (Sam) had been in communication with the SBL (Rob) about the school's goals for the week. This resulted in the creation of a one-page briefing sheet, which contained contextual details about the school and outlined key aspirations and goals for the week. School X's visions to 'Challenge, Motivate and Inspire' and their key learning outcomes are outlined in the flip-chart below and that was placed in the staff briefing room for all OB staff to be aware of and as reminder to the visiting school staff.



The briefing sheet was accompanied by a provisional outline of the activities, informed by prior communication, which was emailed to the SBL in advance.

Monday: Team building, ice breakers, and activities aimed at assessing the needs of the young people (Run/dip in the lake at some point during this build up phase).

Tuesday: May include gorge walking, scrambling, rock climbing or canoeing depending on weather and the appropriateness of the activity for the group.

Wednesday/Thursday: Expedition - usually a mixture of water and mountain-based journeying in around the Ullswater valley, including a remote camp somewhere in the hills.

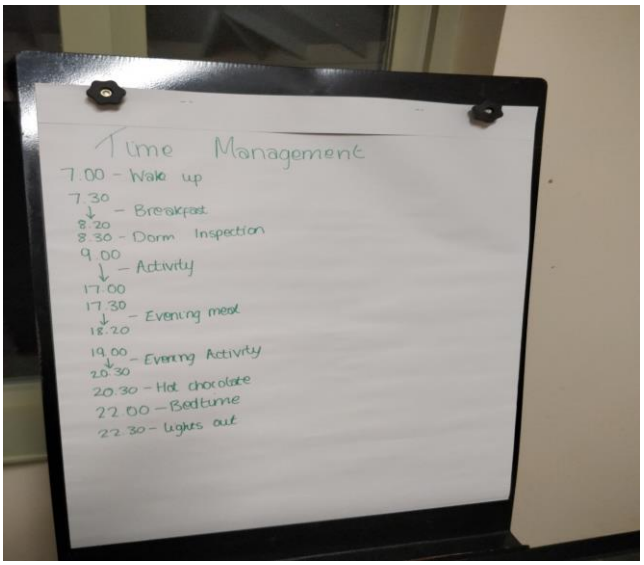
Friday: A more local session with a view to reflection and learning transfer.

The students from School X had received their learning journals in advance of attendance and had been expected to have populated sections of it ahead of visiting, during and after.

Following arrival to the site

Soon after School X arriving at the centre, the Head of Centre (Greg) and Centre Operations Manager (Tom) ran a welcome address for all school staff that had arrived that day. The emphasis was placed on how critical attending school staff were to the goals for the week - *'as educators your input is equally valued'* and as such were strongly encouraged to *'negotiate with course directors'*. Tom stated, '*my office door is never shut*' and that OB staff would endeavour to do '*whatever we can do that is safe and realistic*'. This added to a genuine sense that centre staff were committed to con-constructing delivery that was a tailored experience for schools. Although planning had taken place in advance, it was made clear that plans were not set in

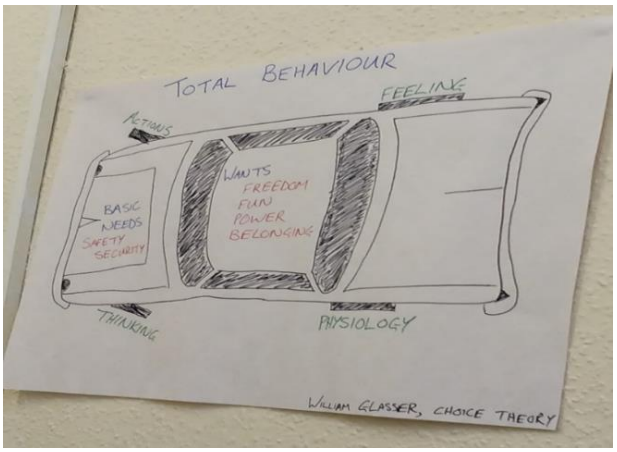
stone and that it was important that SBLs communicated if there was perceived to be any missing dimensions.



The image to the left provides an overview of the daily structure for school X whilst at the residential.

This structure was very broadly replicated across schools with visiting school staff having some discretion over when lights off were etc.

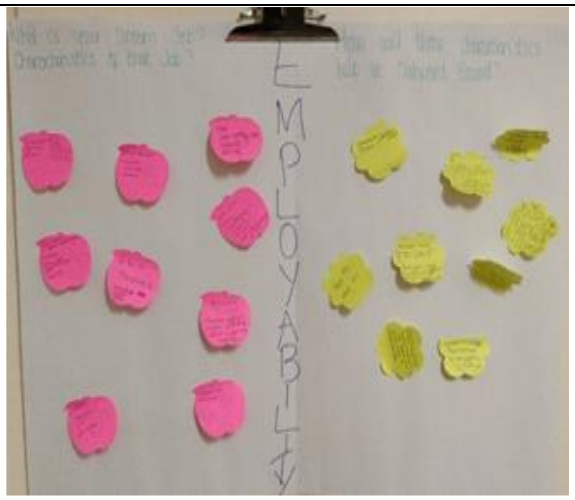
On Tuesday morning, a briefing meeting took place with Seb, Rob, the other visiting school staff and the two instructors that had been assigned to each student group (without the students).



This acted as an opportunity to clarify the schedule for the day and crystalise expectations. Seb had undertaken some background research based on the school's goals and introduced two theoretical concepts, that he felt would augment the learning experience, namely:

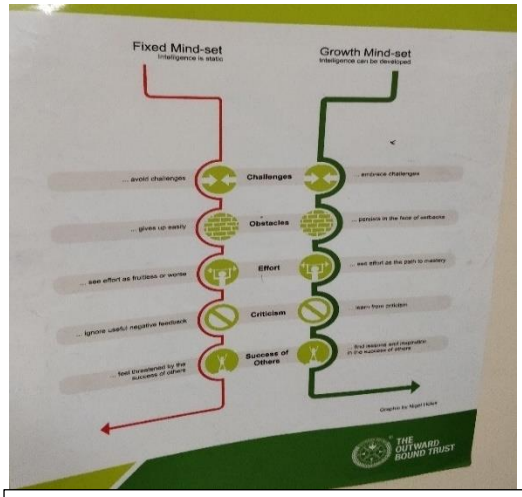
'Choice theory' (https://wglasser.com/what-is-choice-theory/.) -with an emphasis on the importance of a developmental mindset

Scott Brunero's challenge/support plot: Seb talked through scenarios depending on where in the quadrant a learner (and their surrounding environment) was located.

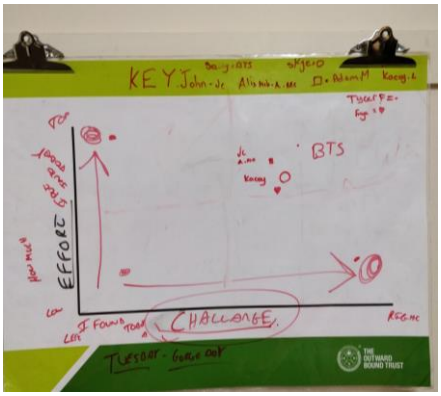


Early in the evening of the day of their arrival, students were allocated into their specific group and introduced to their OB instructor. Usually with a visiting staff member also present, some 'big picture' discussion was entered into about what each student wanted to get out of the week. Students were also encouraged to think about how key characteristics for their 'dream job' might be help and be 'transferrable' to their forthcoming week at OB.

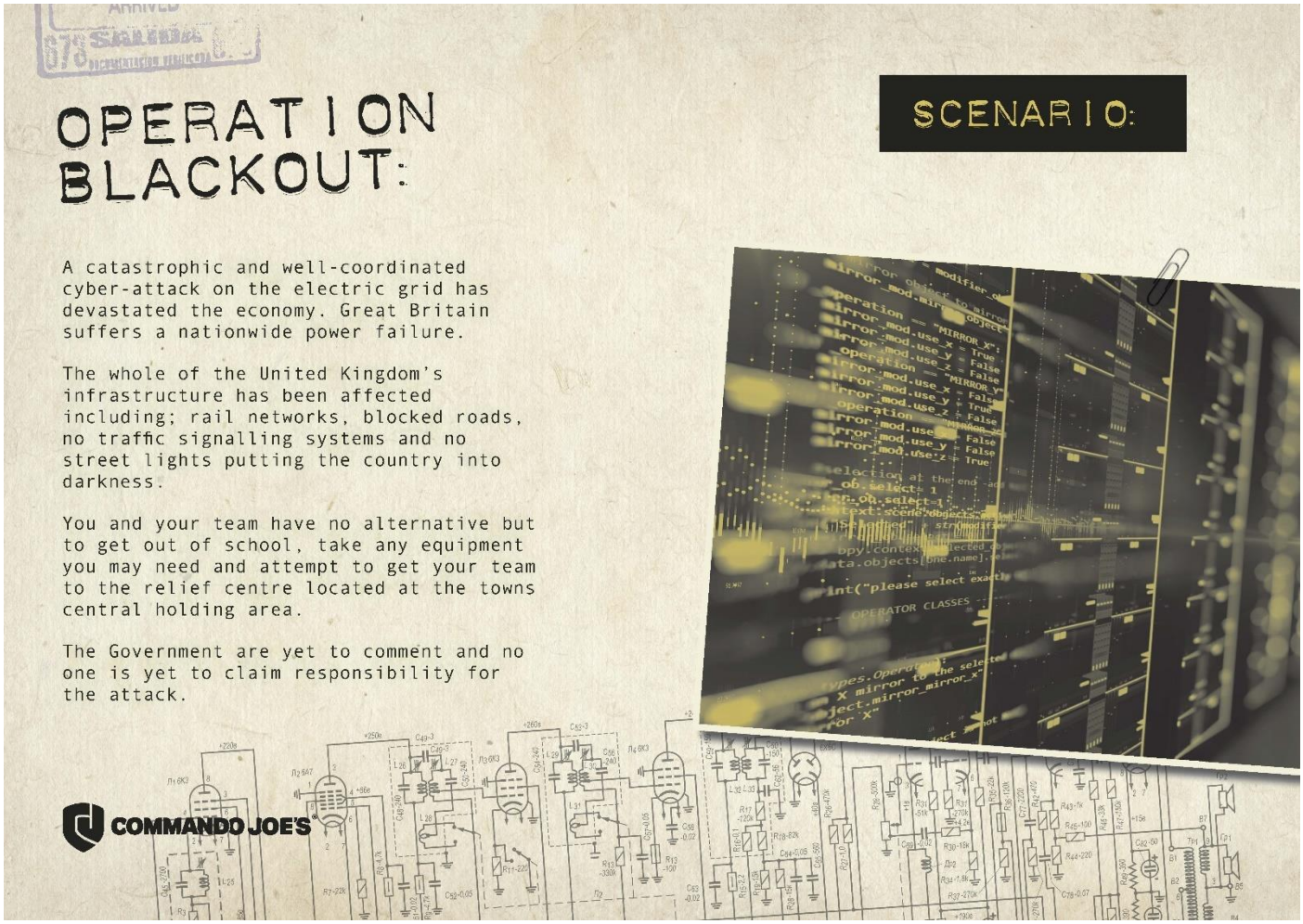
Prior to preparing for each adventure learning activity, the OB instructor would do a tailored briefing session to the students and visiting school staff member. This typically consisted of running over a key learning concept, in the case of the Gorge Walking briefing this was a discussion around Fixed vs Growth Mindset and then very practical set of instructions around the kit/equipment that was needed from where and by when.



Following the conclusion of an adventure learning activity – a debriefing session took place back at a dedicated learning pod on site. Students and visiting staff were encouraged to reflect upon how the activity had gone. Following the Gorge Walking activity students and staff were encouraged, to give a mark between 1-9 against a series of statements such 'did you help someone' / 'did you feel scared etc. Along with being encouraged to mark where they felt they were on a effort vs challenge chart. This was followed up with the instructor then trying to transfer any learning into a broader context for example in a school setting or future life goals.



Appendix K: Details about the Operation Blackout scenario (CJs)

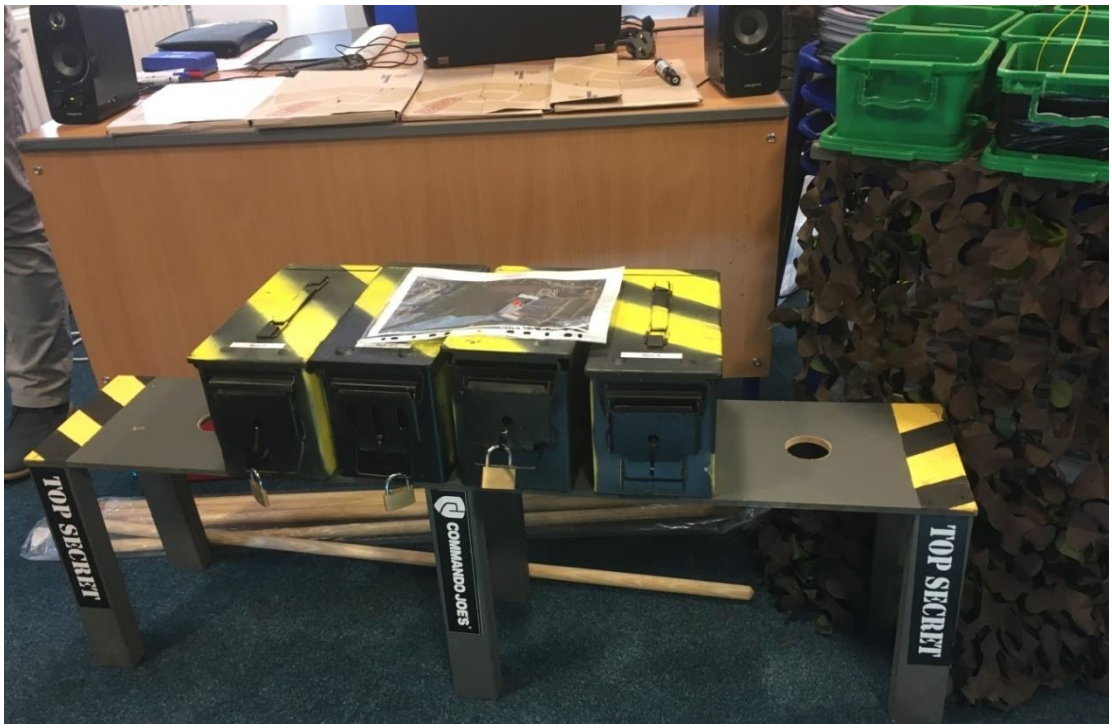


Appendix L: Overview of the 12 missions that make up 'Operation Blackout' (CJs)

	Time	Mission		Team Effectiveness Character Behaviours	Suggested Outcomes
1	23:59:50 hrs	Clarity of vision is key in reaching the muster!	Decide what kit and equipment you think you will need before you escape the classroom/ hall. Teams must race against the clock to get vital items for their journey then navigate through blacked out corridors to get to the school muster point, avoiding any obstacles.	**COMMUNICATION** vision, presence, feedback, listen, clarity, negotiates	• Understanding of the benefits of having a coherent vision • Presence within the team to add to the success of the team • Ability to listen actively to ideas in a group and feedback where necessary • Ability to give clarity to ideas to ensure understanding • Ability to consult and negotiate when formulating a plan
2	02:10:54 hrs	An expert in anything was once a beginner	Team have left valuable items for sustainability inside the school. Create a belay system using a Bowline knot to recover items that will be essential for the next part of your journey.		
3	03:55:02 hrs	Effective communication comes in many forms	Try to establish emergency communication using Morse Code and/or the international code signal for distress.		
4	05:37:22 hrs	Self-control is key in leadership!	Teams must navigate each other (using walkie talkies) to collect items of equipment scattered around the school to build sufficient shelter before nightfall.	**LEADERSHIP SKILLS** self-control, truth, courage, decisive, empathy, self-aware	• Be able to think strategically • Ability to analyse and interpret information/data • Apply focus and logic in finding solutions to problems • Ability to identify and use experience and expertise successfully • Can challenge and motivate other members within a team • Can observe critically and offer feedback
5	07:24:04 hrs	Courage to lead, courage to build!	Design and assemble shelter before nightfall. Does your shelter offer emergency protection in all weather conditions? Is it waterproof and windproof.		
6	09:34:55 hrs	Decisiveness will keep your team afloat	Hydroelectric powered dams have overflown, use what equipment you can salvage to move to high ground before being swept away.		

	Time	Mission		Team Effectiveness Character Behaviours	Suggested Outcomes
7	11:07:41 hrs	Necessity is the father of invention	Design and build a Mini Water Filter that is tight and versatile. Teams are to test that their filtration system against bacteria.	**WORKING WITH OTHERS;** honest, reliable, fair, positive, commitment, inspire	• Can inspire other team members • Ability to delegate different roles within a team • Motivates and empowers others to achieve • Gains commitment from team members • Can take responsibility when performing tasks • Hold others to account and reflect on performance
8	13:01:32 hrs	Remain positive in the face of adversity	Team members have sustained minor injuries whilst retrieving items for water filter. Explore methods of extracting injured persons to the medical centre.		
9	15:15:12 hrs	The past cannot be changed. The future is yet in your power.	Hydroelectric powered dams have overflown, use what equipment you can salvage to move to high ground before being swept away.		
10	19:25:01 hrs	Self-doubt is the anchor that keeps our ships from sailing	The power cut has caused all major road networks to be blocked. A floatation device must be created to move to the holding area.	**DEVELOPING SELF;** self-confident, adaptable, decisive, resilient, manage self, creative	• Self-confident when working in a team or independently • Can adapt to a new environment or to changes in the current environment • Decisive and focussed to complete a task successfully • Shows resilience when facing setbacks • Know your own abilities and seeks self-improvement • Shows creativity against adversity
11	22:47:32 hrs	Decisions determine destiny	There is limited space inside the humanitarian aid tents at the airport. Discuss who in your team should be prioritised drawing on the information on your 'Profile' cards. Medical symptoms, skills and character all need to be considered when making difficult moral choices.		
12	23:34:32 hrs	Getting Connected	Reflect back on past missions. What qualities of leadership were required? Discuss the benefits of self-sacrifice and humility when approaching challenges.		

Appendix M: Example photographs of the CJs Headquarters within a school setting



Appendix N: Example of CJs standard offer from 2017/2018

Appendix O: EEF cost rating

Appendix table 4: Cost Rating for Outward Bound

Cost rating	Description
£ £ £ £ £	*Very low:* less than £80 per student per year.
£ £ £ £ £	*Low:* up to about £200 per student per year.
£ £ £ £ £	*Moderate:* up to about £700 per student per year.
£ £ £ £ £	*High:* up to £1,200 per student per year.
£ £ £ £ £	*Very high:* over £1,200 per student per year.

Appendix table 5: Cost Rating for Commando Joe's

Cost rating	Description
£ £ £ £ £	*Very low:* less than £80 per student per year.
£ £ £ £ £	*Low:* up to about £200 per student per year.
£ £ £ £ £	*Moderate:* up to about £700 per student per year.
£ £ £ £ £	*High:* up to £1,200 per student per year.
£ £ £ £ £	*Very high:* over £1,200 per student per year.

Appendix P: Security classification of trial findings

OUTCOME: *Self-regulation of learning (SRL-SLS) after 1 year (T3)*

Rating	Criteria for rating			Initial score		Adjust		Final score
	Design	**MDES**	**Attrition**					
5	Randomised design	<= 0.2	0-10%			Adjustment for threats to internal validity		
4	Design for comparison that considers some type of selection on unobservable characteristics (e.g., RDD, Diff-in-Diffs, Matched Diff-in-Diffs)	0.21 - 0.29	11-20%					
3	Design for comparison that considers selection on all relevant observable confounders (e.g., Matching or Regression Analysis with variables descriptive of the selection mechanism)	0.30 - 0.39	21-30%					
2	Design for comparison that considers selection only on some relevant confounders	0.40 - 0.49	31-40%					
1	Design for comparison that does not consider selection on any relevant confounders	0.50 - 0.59	41-50%					
0	No comparator	>=0.6	>50%	0 padlocks				0 Padlocks

Threats to validity	Risk rating	Comments
Threat 1: Confounding	HIGH	Randomisation procedure and allocation were well followed and described in the report. An Imbalance >0.1 SD between treatment and control arms was observed in baseline SRL-SRS scores.
Threat 2: Concurrent Interventions	LOW	Due to a randomisation design, this should not be problematic. Covid-19 restrictions hampered use of resource bought in by Control group schools.
Threat 3: Experimental effects	N/A	
Threat 4: Implementation fidelity	MODERATE	CACE analysis was undertaken and results were consistent with the main findings. There is great difficulty in extending the effects of the intense 5-day intervention delivery due to impact of Covid-19.
Threat 5: Missing Data	SERIOUS	Differential attrition was observed between CJs (58.1%) and control arm (69.9%) at T3. The volume of missingness at T3 undermines most analyses. Though MI sensitivity analyses were undertaken, it is questionable whether these are robust to such a high volume (>60%) of missingness.
Threat 6: Measurement of Outcomes	MODERATE	Validated measures were used for primary outcome. T2 assessments were carried out under typical assessment conditions. T3 data collection was protracted, allowing for more 'fade' of any potential impact.

		Students were allowed to complete T3 assessments at home or in school, online or paper based.
Threat 7: Selective reporting	LOW	Analyses were pre-specified within the published protocol and SAP. The trial was registered on ISRCTN. The reporting is clear, transparent and thorough.

- **Initial padlock score:** 0 padlocks- Well-designed randomised RCT design with an MDES of .22 at randomisation stage. A high degree of overall attrition (64.8%) for the primary outcome at timepoint 3 (T3) reduces the security rating to 0 padlocks.
- **Reason for adjustment for threats to validity**:
- **Final padlock score:** 0 padlocks.

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