



Evaluation Report

Generation Green 2



Assessing the Impact of Nature-based Short Courses for Young People 2025

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Executive Summary

Evidence suggests that children are spending less time engaged in outdoor play and nature (Charles & Wheeler, 2012; Natural England, 2009) and that young people from lower income and ethnic minority backgrounds have less opportunity to spend time outdoors and access green spaces (Natural England, 2021). In response, Generation Green 2 aimed to address these inequalities by offering young people opportunities to spend time in nature, facilitating an interest in green spaces by enabling them to visit beautiful natural landscapes based in the National Parks, National Landscapes and at Sites of Special Scientific Interest. Young people were able to experience the outdoors through a mixture of multi-day residential experiences, farm visits, day trips and 'nights under the stars' camping trips all of which aimed to support a deeper connection with and understanding of the natural world.

This report provides an evaluation of quantitative data collected at three time points: Time 1 (pre-short course), Time 2 (post-short course) and Time 3 (12-week follow up after the end of the course). It also includes analysis of qualitative data collected from the young people who took part in the Generation Green 2 trips along with interview data collected from staff who worked with the young people on a daily basis.

In total, 941 young people completed questionnaires at time points 1 and 2, with 272 of these young people also providing questionnaire data at time point 3. The questionnaire data measured levels of nature connectedness, importance of looking after nature, wellbeing, connection to the night sky, and inclusion of nature at night in self which relates to how much a person feels they are a part of nature at night. In addition, 388 young people provided qualitative data to provide a deeper understanding of their experiences in nature during the short courses, and 4 staff members took part in interviews to share their insights into the impact of Generation Green 2 for the young people they work with.

Short Term Impact

Analysis of the survey data was overwhelmingly positive with significant increases being observed after the short courses for nature connectedness, importance of looking after nature, wellbeing, connection to the night sky, and inclusion of nature at night in self. These significant improvements were present in both trip types with positive increases seen in both the single day trip and multi-day residential trips.

A more pronounced increase in wellbeing was seen for those attending the single day trips compared with the residential experiences.

Significant short-term increases from Time 1 to Time 2 in both the day trip and residential short courses was seen for:

Nature connectedness; importance of looking after nature; wellbeing; connection to the night sky and inclusion of nature at night in self

Longer Term Impact

Analysis of the Time 3 data shows that for all five measures taken of nature connectedness; importance of looking after nature; wellbeing; connection to the night sky; and inclusion of nature at night in self, short term increases were seen in all measures across both the day trip and residential experiences from time 1 to time 2. When considering further change at

time 3 it was clear that these increases were maintained in the residential group but not in the day trip group for all variables apart from importance of looking after nature. This indicates that overnight residential experiences may support longer-lasting improvements across these measures, whilst the day trips may result in a short-term boost, but this does not appear to be sustained over the longer term.

The significant increases in nature connectedness; wellbeing; connection to the night sky and inclusion of nature at night in self were maintained at follow up for the residential group only

Residential experiences appear to support longer-lasting effects across all measures taken whilst day trips appear to support a more intense short-term boost.

Evidence of the pathways to nature connectedness – Qualitative analysis

The pathways to nature connection, as described by Lumber et al., (2017), were used as a deductive 'lens' to support coding for instances where these pathways were evident. All five pathways were present in the data, with strong support for senses, beauty, emotion and compassion, and weaker support for the "meaning" pathway. There was also evidence that young people connected with nature through a blending of the pathways with many quotations exemplifying more than one pathway.

Contact

The young people talked about the many memorable aspects of the activities where they used their senses to engage with their surroundings. This multi-sensory experience was evident as they recalled some of their favourite moments and in some cases, several senses were included, along with overlap with other pathways such as beauty and emotion.

Beauty

Many young people commented on the beauty of nature in their evaluations of their time immediately after their experiences and thinking back to their trips once they returned to school and regular routines. Again, there was evidence of links between pathways whereby being aware of the beauty of nature was associated with several pathways and often acted as a call to take care of nature.

Emotion

Emotion was the most represented pathway across the dataset as clearly the young people had many different emotions around being in nature, away from home, with friends, doing new activities, and, in some cases, in wet and cold weather. Whilst there were some negative emotions expressed, the majority of comments were filled with positive emotions, and some paired emotions that changed with their accomplishments. Others also commented on how nature had a positive impact on emotions or helped them to reduce negative emotions.

Compassion

The compassion pathway was evident across the Time 3 data set, but not in the day trip data. Examples came when the young people reflected on their time away from home on

their residential trips, and they wrote about the things they had learned or been changed by. Their responses spoke to their deeper awareness of the natural world and the care and protection they felt towards it or understood in a more direct way as a result of their trip. Some also spoke about how they were now more motivated to engage in pro-environmental behaviours.

Meaning

Meaning was less explicit in the dataset, and this echoes findings from the GG1 evaluation (Holland et al., 2024). The symbolic associations around nature may not have been understood by younger people, so this pathway's clear lack of support perhaps suggests that for young people, and in this case those from areas of social deprivation, other pathways to nature connection were more relevant to them. There were just two extracts which reflected this pathway.

Qualitative data showed support for a deeper connection with nature

There was strong support for the importance of the contact, beauty, emotion and compassion pathways.

The meaning pathway was less evident for the young people.

Secondary Inductive Analysis

In addition to the pathway-specific analysis, four additional themes were developed through an inductive analysis of the young people's data. These were intra- and inter-personal awareness; fascination through learning; 'part of nature: personal connection to nature; and post-trip behavioural and attitudinal changes.

Intra- and inter-personal awareness

The young people often commented on how much they enjoyed being outside with their friends, making new friends and, in some cases, changes in relationships with teaching staff were also evident (interpersonal awareness). They also spoke about understanding themselves better or learning more about what they liked or could achieve as independent people (intrapersonal awareness).

Fascination through learning

The young people's comments were full of descriptions of the learning they gained through their trip. Many highlighted how they had learned more about the importance of caring for nature. They wrote about the many aspects of nature they now knew more about or highlighted new experiences that left a lasting impression on them. In many instances they highlighted how this information was exciting for them.

'Part of nature': personal connection to nature

Many of the participants used the term nature connection in their evaluation and spoke about their deepened relationship to the natural world. Whilst some of their comments link to the pathways, they add a level of personal connection in which they clarify that they feel part of nature themselves, not just as its steward or protector, but as an integral part of it.

Post-trip behavioural and attitudinal changes

This theme captures the young people's behaviours and attitudes that they reported as being different after their trips. In some cases, the changes reflected positive behaviours they had added, including following up on interests they had become more aware of on their trips.

Teacher insights

Four cross-case themes were developed from the interview data from the 4 teachers who participated and are summarised below.

Trip as a valued asset with barriers to uptake

The teachers were very aware of the opportunity afforded by the trips for their students and recognised the financial barriers to participation present for the students and their families. They became more aware of cultural barriers to uptake and staff had to work hard to help students and their families appreciate the value of the experience being offered. As a result of planning the trip, staff became more aware of some of the difficulties faced by their students and their families.

The importance of stretch; 'they just surprised themselves so much'.

The teachers recognised how the young people were stretched outside of their comfort zones during various aspects of the trip. They noted how this facilitated growth, confidence building, resilience and pride. The young people were observed to tackle challenges and succeed in activities that initially they found difficult, unnerving or uncomfortable in some way and the teachers also noted how the students gained confidence from one another during some of the challenging activities.

Novel experiences: 'they'd never seen a deer before'.

The teachers reported the novelty of the experiences for the young people, many of whom came from urban areas in England. Clear differences between the urban areas where many young people lived and the new sights of the countryside gave the staff clearer insights into how different it was for the young people to be away from home. The novel experiences were seen as being very important for the young people and ranged from being exposed to new sights, sounds and smells to developing new skills, the freedom during the trip to engage in self-led activities.

Changed relationships: 'it's had a much bigger impact than just going on a trip'.

Across the data set, staff described the changes they saw in the students, and particularly how they related to other people including their peers, teachers and staff supporting them. In some cases, staff recognised their own change in perception about the young people. The teachers also reported changes the parents' noticed about their children once they returned home.

Young people engaged with nature through a wide variety of activities, were pushed out of their comfort zones, overcame challenges, learned new skills, had the freedom to engage in self-led activities, developed a greater appreciation for the natural world, and had the opportunity for an amazing and awe-inspiring experience.

Impact case study: 'Their whole outlook on school life changed'

Finally, one staff member highlighted the profound changes they had observed in some of the young people as a result of attending the residential experiences. These changes were apparent in their engagement in school, improved social skills and outlook for the future.



Figure 1: Young people getting ready to start the day's activities

Summary

In summary, the findings of this report are overwhelmingly positive. The survey data shows significant increases across nature connectedness; importance of looking after nature; wellbeing; connection to the night sky; and inclusion of nature at night in self with short term positive changes being present across all measures for both day trip and residential trips with these changes being maintained longer term in the residential group. This suggests that the day trips result in a short-term boost to these measures, whilst the residential trips result in more sustained longer-term changes.

The qualitative data analysis demonstrates that these short trips have a profound impact for the young people. There is clear evidence of them connecting with nature through four of the pathways, contact, beauty, emotion and compassion, whilst there is more limited evidence in support of the meaning pathway. The short trips provided the young people with new opportunities to engage with the natural world, be pushed out of their comfort zone, face new challenges, develop relationships with others and to develop a deeper understanding of and connection to nature with many experiencing changes to their outlook and behaviour after the trip.

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All images used in this report are reproduced courtesy of The Generation Green 2 Access Unlimited Coalition partner organisations.

Cover image: Young people from Westfield Community School in Wigan enjoy a hike in the Lake District on a YHA-led residential

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1. Introduction

Access to nature

There is growing concern that children are spending less time engaged in outdoor play and nature (Charles & Wheeler, 2012; Natural England, 2009). Coupled with an increase in time spent on screen-based activities, this means that children are more likely to engage in indoor play (Price et al., 2022). This was exacerbated by the Covid 19 pandemic, where UK national lockdowns mandated by the government, and the move of schooling to remote learning, further reduced access to the outdoors for children and young people. During lockdowns children reported spending 60% less time outdoors, with children from lower income households spending less time outdoors than their more affluent peers (Natural England, 2021). Children from black and minority ethnic backgrounds are 4 times less likely to have access to green space than children from white backgrounds (Natural England, 2021). Therefore, interventions which aim to provide children and young people, particularly those from more urban, lower-income and marginalised groups, with access to nature and green space are important.

It is becoming increasingly apparent that spending time in nature results in positive benefits, with research consistently demonstrating that time spent in nature, and feeling connected with nature are good for health and wellbeing (Pritchard et al., 2019; Martin et al., 2020). Furthermore, Engemann et al., (2019) demonstrate that childhood access to green space is associated with lower risk of mental ill-health as an adult.

Nature Connectedness

Nature connectedness refers to the emotional affinity an individual feels towards nature and how much they feel they are embedded in the natural world (Mayer and Frantz, 2004; Schultz, 2002). Interventions that aim to improve connectedness to nature in adults have been shown to be beneficial for mental health (McEwan et al., 2019; Keenan, et al., 2021) whilst nature-based interventions delivered with children also show a positive impact on wellbeing (Piccininni et al. McEwan et al., 2022). Children with higher levels of nature connection have also been found to report higher levels of life satisfaction, pro-nature behaviours and pro-environmental behaviours (Richardson et al., 2015; Harvey et al., 2023) thus being connected to nature appears to be beneficial to children and young people in various ways.

Short day trip and residential experiences in nature provide an ideal opportunity for young people to develop a deeper connection to nature. In their work to evaluate the impact of Generation Green 1, Holland et al, (2025) demonstrated that 2 to 5-day residential experiences in nature led to short term increases across several areas including: nature connectedness, feeling more aligned with nature, recognition of the importance of looking after nature, and confidence in making new friends. Qualitative data revealed that the young people developed a greater sense of self, and their understanding of the outdoors and the natural world developed. They appreciated the opportunities to explore afforded to them by spending time in the natural environment and they valued the challenges presented. Whilst statistically, positive short-term effects were observed, the longer-term impact of short trips and residential experiences in nature need to be explored as in Holland et al.'s evaluation, the increases post trip were not apparent at 8 weeks follow up.

Connection to the night sky and nature at night

For many, nighttime environments and the night sky are compelling yet underexplored parts of the natural world and are distinct from daytime nature in how they are perceived, experienced and accessed. While we know from daytime-focused research that factors such as weather (Elliot et al., 2019), perceived safety (Weimann et al., 2017), and access to green space (Passmore et al., 2021) influence how people engage with nature and form relationships with it (Richardson et al., 2021), nature at night offers moments for different kinds of connection. Spending time outdoors at night provides opportunities to experience its unique biodiversity, sensory qualities, dark and starlit skies.

Night-time experiences and activities such as bat watching or nocturnal conservation (Tanalgo & Hughes, 2021), night hiking (Ramirez et al., 2018), and stargazing or astrotourism (Bjelajac et al., 2021) have all been associated with an enhanced connection to the natural world. Yet despite growing interest, there remains a clear gap in research specifically focused on how people connect with the natural world at night and how this connection might inspire behaviours that protect the night sky and nocturnal environments. The idea of forming a meaningful relationship with the natural environment at night has recently been explored in the work of Barnes and Passmore (2024), who introduced the concept of Night Sky Connectedness (NSC). Grounded in the Pathways to Nature Connectedness (Lumber et al., 2017), NSC provides a theoretical structure for understanding how people develop emotional and psychological bonds with the night. This relationship can be fostered through five key pathways: (1) sensory engagement with the night [its sounds, sights and smells], (2) emotional responses to the nocturnal environment [filled with moments of awe and wonder], (3) appreciation of the beauty of the night sky and celestial phenomena [such as meteor showers, the Milky Way or the Moon], (4) finding meaning—personal or cultural—in night-time experiences [such as stories, tales or shared memories], and (5) compassionate actions that protect the night and its ecosystems [from things such as light pollution].

Barnes and Passmore's research suggests that Night Sky Connectedness is negatively impacted by the severity of light pollution—people living under brighter skies tend to feel less connected to the night. Conversely, adult populations with a deeper relationship to the night sky report greater happiness and better mental health outcomes and feel more inclined to look after the night too.

Summary

This evaluation of Generation Green 2 provides an opportunity to explore the longer-term impact of day trips and short residential experiences in nature by collecting data at 3 time points, including data collected from a sample of young people approximately 12 weeks after the end of their nature-based experience, thus extending the methodology used in the evaluation of Generation Green 1. This evaluation also afforded an excellent opportunity to explore the benefits young people may experience from engaging in activities designed to support their appreciation of the night sky and their connection to nature at night.

2. The Intervention

Access Unlimited is a coalition of non-profit school, residential and educational providers comprising the Youth Hostel Association (YHA), Outward Bound Trust, Field Studies Council, Girlguiding, Scouts, nine National Parks Associations and eight National Landscapes. Access Unlimited received £4.5 million to deliver an ambitious project which provided opportunities for over 25,000 young people from socially disadvantaged areas to spend time in the natural landscape and connect with nature, via day trips and residential outdoor experiences.

The intervention aimed to address some of the inequalities experienced by young people, whereby children living in the most deprived areas report spending less time in nature and similarly, children from black and minority ethnic backgrounds spend less time accessing nature than their white counterparts (Natural England, 2021).

Generation Green 2 aimed to address inequalities in access to nature by offering young people opportunities to spend time in nature by enabling them to visit beautiful natural landscapes based in the National Parks, National Landscapes and at Sites of Special Scientific Interest. Young people were able to experience the outdoors through a mixture of multi-day residential experiences, farm visits, day trips and nights under the stars camping trips, all of which aimed to support a deeper connection with and understanding of the natural world.

These experiences offered young people the opportunity to learn more about the natural environment, to engage with nature through the specific pathways to nature connection (Lumber et al., 2017) and to learn more about protecting and caring for nature. Opportunities for skills-based learning and development were also woven into the activities, along with the opportunities to work in new groups, thus facilitating making new friends and building social, team working and leadership skills. All the schools invited to take part in Generation Green 2 had high levels of pupil premium funding. Through the different trips on offer, young people took part in a wide variety of activities including scenic walks, conservation activities, nature exploration and opportunities to connect deeply with the natural environment during the day trips and residential courses. Those attending the farm visits had the opportunity to explore life on a working farm and develop understanding of where food comes from and for example, learning how butter is made, providing valuable insights into agriculture's role in food production and deepening connection with the food they consume.

Young people attending overnight residencies and single day sessions which included 'an evening under the stars', explored the night sky, discovering the wonders of the stars, planets and constellations. Nighttime wildlife walks developed understanding of nocturnal



Figure 2: A walk in the woods near Lake Windemere

wildlife and enabled a deeper connection with nature at night along with understanding of the importance of protecting dark night skies.

Residential trips provided opportunities for a wider range of activities, with some engaging in more adventurous outdoor activities such as canyoning and rock climbing. Activities such as night games and campfires were also a feature of some trips.

All activities were designed to facilitate a deeper connection to nature through a growing understanding of the natural world, providing opportunities for young people in natural environments that they might not otherwise experience. The pathways to nature connection underpinned the curriculum across all the providers' activities.

3. The Evaluation Methodology

The Youth Hostel Association commissioned the University of Derby to evaluate the impact of the Generation Green 2 short courses. The aims of the evaluation were to assess any impact of the project on young people's: nature connectedness, importance of looking after nature, wellbeing, connection to the night sky, and inclusion of nature at night in self, and to understand more about their experiences in nature through qualitative exploration of their experiences.

The evaluation employs a mixed methods approach and includes quantitative data capture through the use of a survey across 3 time points, and qualitative data capture where the young people shared their thoughts and feelings in more depth during a short activity at the end of their trip. Therefore, to establish if the short courses had an impact on nature connectedness, importance of looking after nature, wellbeing, connection to the night sky, and inclusion of nature at night in self, a sample of young people completed the questionnaires at 3 time points so that any changes over time could be observed. Time 1 data was collected prior to the start of the trip, Time 2 data was collected at the end of the trip and Time 3 data was captured approximately 12 weeks after the trip had taken place. This Time 3 follow up data was collected through an additional survey sent to a selection of schools/groups which captured both quantitative measures and also asked open questions for young people to add their own thoughts around the impact of their trip 12 weeks on. The latter gave the young people the opportunity to use their own words to describe their experiences and what was important to them.

Four Teachers also contributed qualitative data through individual interviews at 12 weeks post-trip which added rich contextual data around engagement and impact for the young people.

3.1 Quantitative measures

The questionnaire captured data measuring the following: nature connectedness; importance of looking after nature; wellbeing; connection to the night sky; and inclusion of nature at night in self (Please see appendix A for the full questionnaire):

Nature Connectedness

The Nature Connectedness Index (Richardson et al., 2019) includes six questions that are suitable for use with both adults and children. Questions include items such as "being in nature makes me very happy" and responses are scored from 1 (Completely disagree) to 7 (Completely agree).

Importance of protecting nature

Importance of protecting nature was assessed using a single item developed by the researchers: "How important is it to you to look after nature?" which was scored on a 0 (Not at all important) to 10 (Extremely important) scale.

Wellbeing

Wellbeing was measured using the 5 item WHO-5 Wellbeing Index (World Health Organisation, 1998) which is suitable for use with children aged 9 and over. A 0-5 point response scale ranging from 0=At no time, through to 5=All of the time, is used and responses are totalled and multiplied by 25 to provide a score out of 100. An example item is "I have felt calm and relaxed."

Night Sky Connectedness

The 6-item Night Sky Connectedness Index (Barnes & Passmore, 2024) measures connectedness to the night sky using a 0-10 response scale where 0=completely disagree and 10=completely agree. An example item is "I find beauty in the night sky."

Inclusion of nature at night in self

The single item Inclusion of Nature at Night in Self (Barnes et al., in prep.) measures connection with nature at night and how much people feel they are a part of night-time nature. The measure consists of a series of 7 illustrated Venn diagram representations of how much a person feels a part of nature at night resulting in a score of 1-7.

3.2 Qualitative questions – Young People

Qualitative data was generated in two ways. Firstly, a 'thoughts and feelings' activity was conducted at the end of each residential or day trip (Time 2 method), facilitated by the group leaders. Secondly, a post-trip survey (Time 3 method) was sent to a sample of schools/groups, 12 weeks after their residential experience which included three open-ended questions. The answers from these constituted the second set of data for qualitative analysis.

The Time 2 method involved leaders gathering the young people's responses to 4 questions in a variety of ways such as on sticky notes, on large sheets of paper, or in some cases, they asked the questions verbally. In the latter situation, staff wrote down answers from the young people. This approach was particularly useful for those with special educational needs and disabilities (SEND).

The questions in the Time 2 method were:

- What do you remember the most about your time in nature during this trip/residential/camping trip?
- Which activities did you enjoy the most and why?
- Which activities did you enjoy the least and why?

The following question was asked of the residential trips only:

- What was it like being outside at night under the night sky? How did this make you feel?

The Time 3 method asked 3 further open text questions in the survey as follows:

- Looking back, what is one thing you will remember the most?
- What, if anything, have you learned about yourself by being on this trip?
- What, if anything, has changed for you as a result of taking part in this trip?

3.3 Qualitative interviews – Teachers working with the young people

Teachers were asked to describe the ages of the young people on the residential trips, the activities they experienced while away, and anything they observed about the young people while they were doing the activities or when they got back to the classrooms and their normal routines. They were also asked to share any ideas they had about the needs of staff supporting young people in the future and to make recommendations that might inform others involved in supporting young people in attending experiences like Generation Green 2.

3.4 Data collection

Information about the evaluation was sent to all organisations taking part for distribution to parents and the participants. Parental consent was gained by partner organisations and consent was also gained directly from the young people participating. Consent information was read out to the young people to ensure they understood what they were being asked to do, how their data would be used and how they could stop taking part if they decided they would prefer not to continue with the evaluation. Written consent was gained from the teachers taking part in the focus groups and they were also informed of their right to withdraw from the project and how to do this. All participants received a debrief after taking part in the research. The project was ethically approved by the University of Derby's Health Psychology and Social Care Research Ethics Committee.

Quantitative Data

Paper-based questionnaires were completed by the young people at the start of their trip with the second questionnaire being completed at the end of the trip. Follow up questionnaire data was collected approximately 12 weeks after completion of their short course.

Qualitative Data – Young People

The Time 2 qualitative data was captured through group activities conducted by group leaders at the end of the day trip/residential and involved young people using sticky notes which they attached to the questions. In some instances, the young people shared their answers verbally rather than writing them down.

Time 3 data was captured from residential trip participants via questionnaire sent to up to 100 schools and groups who participated in the Time 1 and 2 questionnaires approximately 12 weeks after the conclusion of the trip. Young people responded to 3 open text questions.

Qualitative Data – Teacher Interviews

Interviews were conducted online via Microsoft Teams and were recorded and auto transcribed using the Microsoft Teams software. The transcript was reviewed manually against the video recording for accuracy, and the video was then deleted. Familiarisation of the qualitative data was undertaken, and coding was conducted as per the recommendations of Braun & Clarke (2006, 2021).

3.5 Participant details – quantitative data sample

In total 941 young people provided complete quantitative data sets across time points one and two. Demographic details are shown in table 1 below.

Table 1: Age and Gender of the participants

Demographic details						
	Full sample (n=941)		Day Trip (n=279)		Residential (n=662)	
Age						
Age range	9-17		9-16		9-17	
Mean age (SD)	11.15 (2.41)		10.63 (2.08)		11.37 (2.50)	
Gender	Number	%	Number	%	Number	%
Male	412	43.78	103	36.92	309	46.68
Female	507	53.88	168	60.21	339	51.21
Prefer to self-define	22	2.34	8	2.87	14	2.11

Details of the course provider and numbers of participant responses are shown in table 2.

Table 2: Participant (n=941) responses by residential course provider

Provider	Number	%
Field Studies Council	134	14.2
Girlguiding	31	3.3
National Landscapes	51	5.4
National Parks	320	34.1
Outward Bound Trust	241	25.6
Scouts	80	8.5
Youth Hostel Association	84	8.9

A total of 272 young people provided complete quantitative data at Time 3 and their demographic details are shown in table 3.

Table 3: Age and gender details for the Time 3 sample (n=272)

Demographic details						
	Full sample (n=272)		Day Trip (n=134)		Residential (n=138)	
Age						
Age range	9-17		9-14		9-17	
Mean age (SD)	10.47 (2.39)		9.71 (1.48)		11.22 (2.83)	
Gender	Number	%	Number	%	Number	%
Male	108	39.70	53	39.55	55	39.86
Female	155	56.99	75	55.97	80	57.97
Prefer to self-define	9	3.31	6	4.48	3	2.17

3.6 Participant details – qualitative data sample

The sample for analysis for the Time 2 dataset included 265 young people and further details are show in table 4.

Table 4: Time 2 qualitative analysis sample details

Trip Type	Provider	Age range	Number
Single day field work	Field Studies Council	14-15 years	58
Single day farm (2 groups)	North York Moors	9-10 years SEND	42
Single day Farm	National Parks	7-18 years SEND	12
3-night Residential (2 groups)	YHA	9-10 years	56
2-night Residential (2 groups)	Scouts	9-10 years	97
			Total 265

247 young people completed the T3 open text questions, and their demographic details are shown in table 5.

Table 5: Demographic details for the Young People who provided Time 3 qualitative data

Demographic details		
Age	N=247	
Age range	9-18	
Mean age (SD)	10.56 (2.48)	
Gender	Number	%
Male	113	45.75
Female	131	53.04
Prefer to self-define	3	1.21

4. Results

4.1 Quantitative data overview

The GG2 data collection spans three timepoints – before the activities started (Time 1), immediately after the day trip/residential (Time 2), and approximately 12 weeks after the day or residential trips (Time 3). The following section is separated into two parts. Part-1 provides the short-term outcomes between the first two timepoints for 941 young people – that is, the impact of participating in either type of trip, as measured immediately before (Time 1) and after the trip (Time 2). Statistical analyses were carried out for each of the measured factors: (i) Nature Connectedness; (ii) the extent to which young people want to look after nature; (iii) Wellbeing; (iv) Night Sky Connectedness; and (v) Inclusion of Nature at Night in Self. Part-2 illustrates the long-term outcomes for 272 young people, of the original 941, who completed survey data across all three timepoints: Time 1, Time 2 and Time 3 for these same measures.

4.2 Part 1 Short-term outcomes from the day and residential trips

All analyses are reported in full using a Repeated Measures Analysis of Variance and are accompanied by a straightforward explanation of what the findings mean. A table presenting the mean (average) and standard deviation scores for young people who attended day or residential trips at Time 1 and Time 2, as well as the overall totals, is provided in table 6.

Table 6: Means (standard deviations) for Time 1 and Time 2 (N=941 – Young people)

Factor	Day Trip	Overnight	Time Point 1 (Total)	Day Trip	Overnight	Time Point 2 (Total)
Nature Connectedness	47.45 (25.61)	43.25 (26.34)	44.5 (26.18)	57.33 (28.55)	48.48 (28.74)	51.1 (28.95)
Look after Nature	8.62 (1.84)	7.94 (2.15)	8.13 (2.10)	8.81 (1.7)	8.02 (2.26)	8.25 (2.13)
Wellbeing	61.19 (19.91)	62.13 (19.99)	61.85 (19.96)	67.04 (22.71)	64.33 (21.39)	65.13 (21.81)
Night Sky Connectedness	39.81 (12.92)	38.92 (14.43)	39.18 (13.99)	44.05 (12.90)	40.82 (15.18)	41.78 (14.61)
Inclusion in nature at night	4.67 (1.94)	4.46 (1.77)	4.52 (1.82)	5.06 (1.91)	4.85 (1.77)	4.92 (1.81)



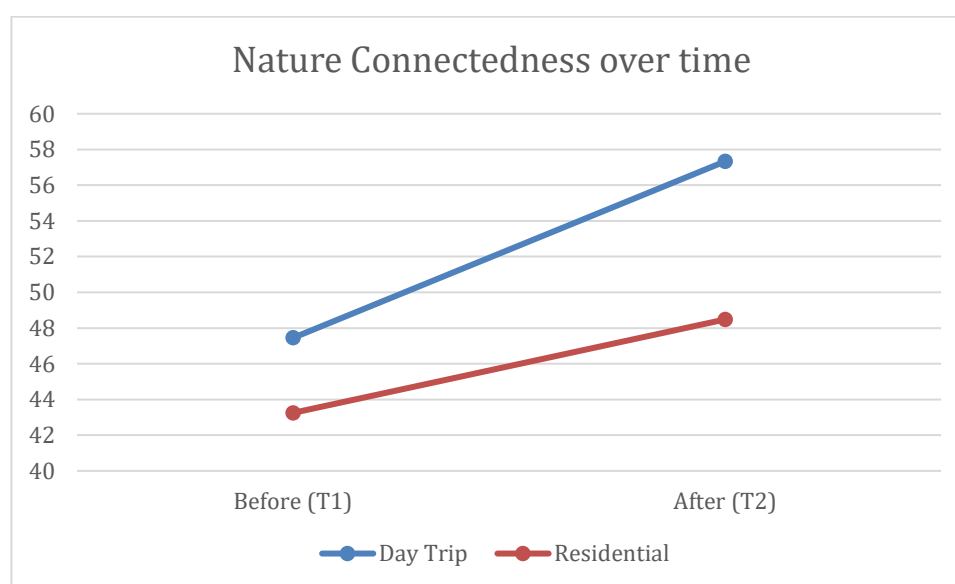
Figure 3: Hiking through Carding Mill Valley, Shropshire

Nature connectedness

The repeated measures ANOVA indicated that there was a significant main effect of trip (Time1/Time2) on nature connectedness ($F=101.36$, $df=939$, $P<0.001$, $d=0.20$). There was also a significant main effect of type of trip (Day/Overnight) ($F=13.01$, $df= 939$, $p<0.001$, $d=0.81$) and a significant interaction effect ($F=9.61$, $df= 939$, $p<0.01$, $d=0.20$).

This means that:

- Young people attending **both types of trip** showed an **increase** in nature connectedness
- The **day trip** participants showed a **larger increase** in nature connectedness than the **overnight residential** participants (almost 10 points vs. 5 points).
- The **significant main effect** of trip type (with $d=0.81$) reflects this larger change in the **day trip** group.
- The **small within-group effect** ($d=0.20$) indicates that the changes in both groups are statistically significant but not large in magnitude. The small effect size (d) also reflects the modest changes in nature connectedness from pre- to post-trip for both groups.
- The **small interaction effect** suggests that although the change in nature connectedness differed between the two trip types, the difference in the change isn't large enough to strongly influence the results.



*Figure 4: Nature Connectedness Score by trip type over time**

*Please note that all charts show the estimated marginal means. These are estimates based on the average response for each group/level and adjust for other variables. They take account of potential confounding factors and unequal sample sizes and so enable a more accurate comparison across different groups. These are used throughout the report in all charts presented and represent the data presented.

Importance of looking after nature

The repeated measures ANOVA indicated that there was a significant main effect of trip (Time1/Time2) on looking after nature ($F=4.83$, $df=920$, $P<0.05$, $d = 0.07$). There was also a significant main effect of trip type (Day/Overnight) ($F=28.26$, $df= 920$, $p<0.001$, $d = 0.12$), but there was no significant interaction effect ($F=0.83$, $df= 920$, $p>0.05$, $d = 0$, see Figure 4).

This shows that:

- **Both day trip and overnight trip young people showed an increase in how important it was to them to look after nature after the trip, but the day trip group showed a larger increase.**
- **Despite being statistically significant, the changes were relatively small.**
- The **small main effect** suggests that, on average, **trip type did not strongly determine young people's views on the importance of looking after nature.**
- The **small interaction effect** suggests that while the two groups changed over time, the **difference between the groups was not significant.**

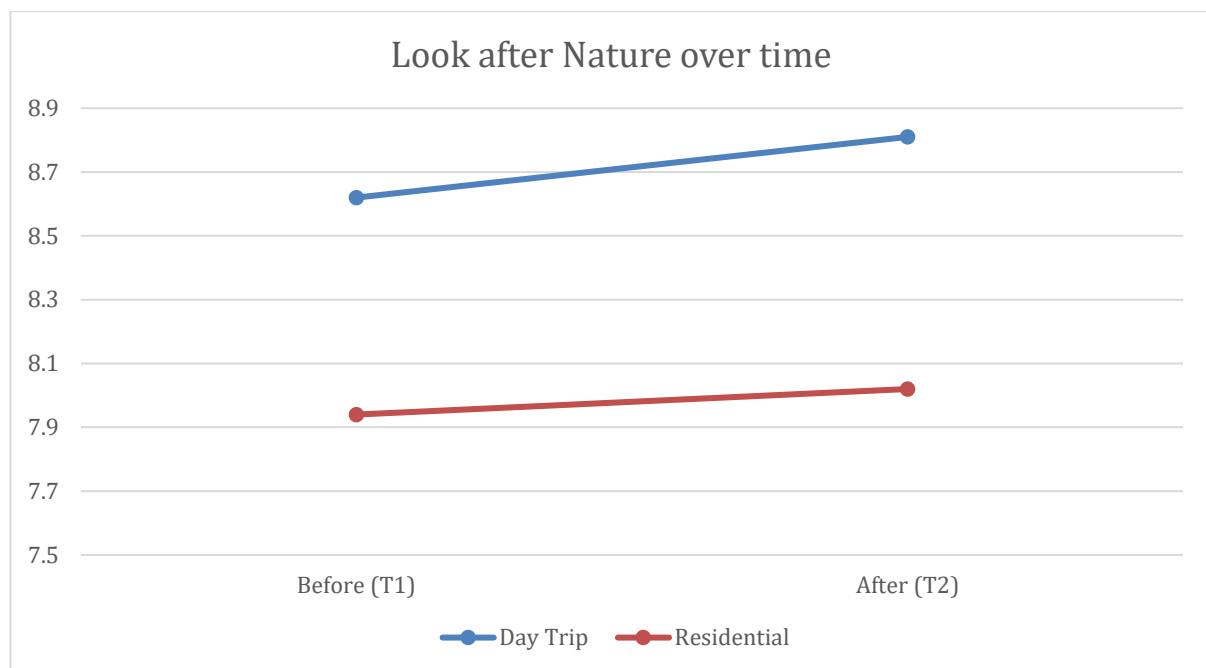


Figure 5: Importance of looking after nature over time

Wellbeing

The repeated measures ANOVA indicated that there was a significant main effect of trip (Time1/Time2) with wellbeing increasing at time 2 ($F=41.95$, $df=939$, $P<0.001$, $d = 0.2$). There was no significant difference in wellbeing between the day trip and residential trip ($F=0.426$, $df= 939$, $p>0.05$, $d = 0$), however there was a significant interaction effect ($F=8.67$, $df= 939$, $p<0.01$, $d = 0.16$) which indicates that although both groups showed an increase in wellbeing, this increase was greater for the day trip than those attending the residential (See figure 5).

In summary:

- **Both groups showed an increase in wellbeing** after the trip, with **day trip participants** showing a **larger increase** than **overnight participants**.
- **The main effect for trip type was not significant**, suggesting that the type of trip did not strongly affect wellbeing.
- **The change over time was more pronounced for the day trip group**, with a **moderate effect** size for the day trip, suggesting that a **single day trip may have a more substantial impact** on wellbeing.
- The **small interaction effect** suggests that although there was a **larger improvement in the day trip group**, the overall difference between the groups was not substantial.

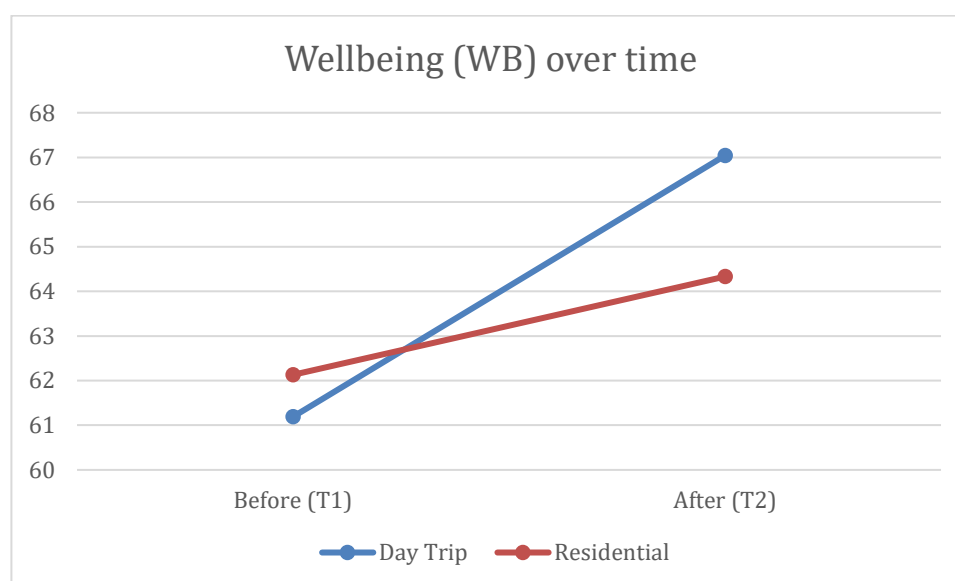


Figure 6: Wellbeing Score by trip type over time

Night Sky Connectedness

The repeated measures ANOVA indicated that there was a significant main effect of trip (Time1/Time2) on night sky connectedness ($F=61.23$, $df=939$, $P<0.001$, $d=0.51$). There was also a significant main effect of type or trip (Day/Overnight) ($F=4.80$, $df= 939$, $p<0.05$, $d=0.14$) and a significant interaction effect ($F=8.83$, $df= 939$, $p<0.01$, $d=0.19$, see figure 6).

This indicates that:

- **For both day trip and overnight trips young people improved in their night sky connectedness after the trip, but the day trip group showed a larger increase.**
- **Despite being statistically significant, the changes were relatively small, particularly in the overnight group.**
- The **small main effect** suggests that, on average, **trip type did not strongly determine night sky connectedness.**
- The **small interaction effect** suggests that while the two groups changed over time, the **difference in how much they changed was not large.**

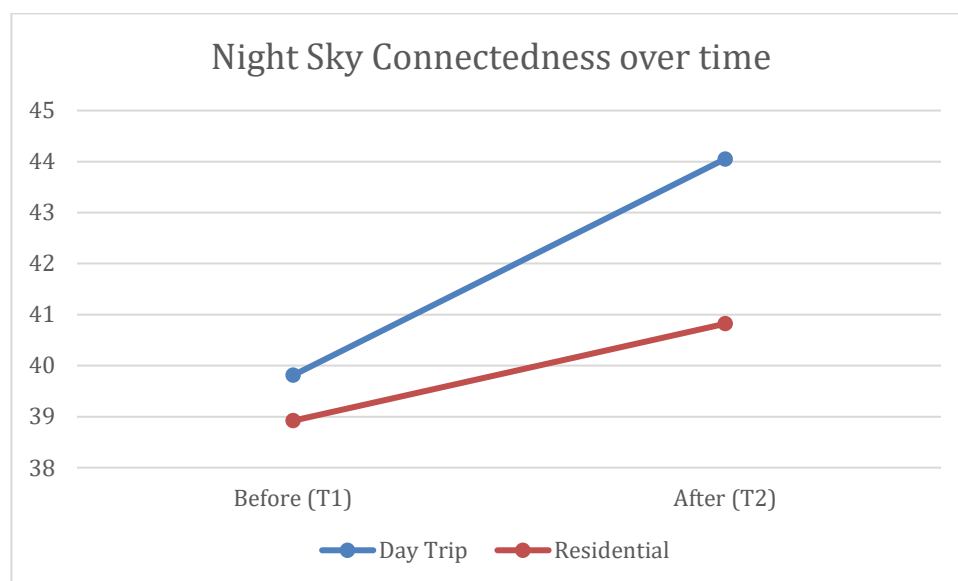


Figure 7: Night Sky Connectedness Score by trip type over time

Inclusion of Nature at Night in Self (*Feels part of nature*)

The repeated measures ANOVA indicated that there was a significant main effect of trip (Time1/Time2) on Inclusion of Nature at Night in Self, ($F=53.2$, $df=929$, $P<0.001$, $d = 0.32$). There was also a significant main effect of trip type (Day/Overnight) ($F=3.072$, $df= 929$, $p<0.01$, $d = 0.07$) and a significant interaction effect ($F=0.003$, $df= 929$, $p>0.05$, $d = 0$, see figure 7).

This shows that:

- **For both day trip and overnight trips young people improved in their nature at night relatedness after the trip**, but the **day trip group showed a larger increase**.
- **Despite being statistically significant, the changes were relatively small.**
- The **small main effect** suggests that, on average, **trip type did not strongly determine nature at night relatedness**.
- The **small interaction effect** suggests that while the two groups changed over time, the **difference was not significant**.

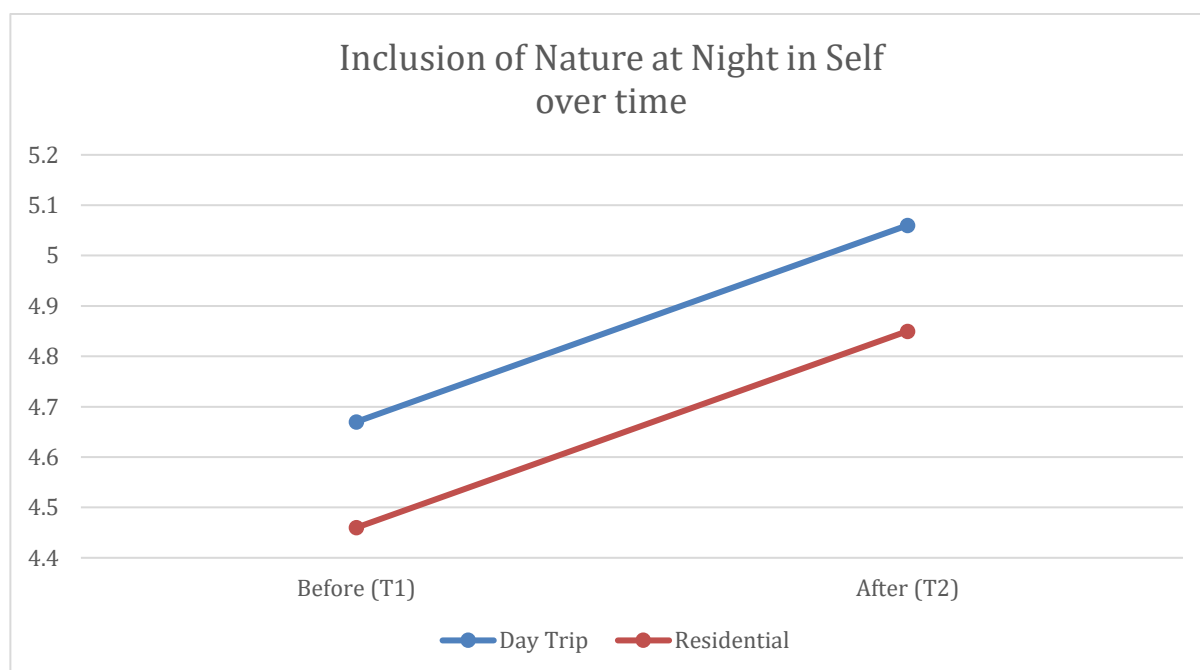


Figure 8: Inclusion of Nature at Night in Self Score by trip type over time

4.3 Part 2 Long-term outcomes from the day and residential trips

All analyses are reported in full using a Repeated Measures Analysis of Variance and are accompanied by a straightforward explanation of what the findings mean. Table 6 presents the mean (average) and standard deviation scores for young people who attended day or residential trips and completed survey data at all three time points.

Table 7: Means (standard deviations for Time 1, Time 2 and Time 3 (N=272 Young People)

	Time Point-1			Time Point-2			Time Point-3		
	<i>Daytrip</i>	<i>Residential</i>	<i>Total</i>	<i>Daytrip</i>	<i>Residential</i>	<i>Total</i>	<i>Daytrip</i>	<i>Residential</i>	<i>Total</i>
NCI	47.23 (23.42)	46.7 (23.9)	46.96 (23.62)	55.43 (25.41)	52.18 (26.59)	53.78 (26.02)	44.03 (22.98)	51.84 (24.37)	47.99 (23.98)
NSC	40.78 (11.19)	40.51 (13.18)	40.64 (12.22)	44.51 (11.09)	43.88 (11.3)	44.19 (11.9)	39.46 (12.54)	43.80 (12.59)	41.67 (12.73)
WB	60.6 (19.22)	63.42 (18.03)	62.03 (18.64)	67.91 (22.18)	66.61 (18.62)	67.25 (20.42)	62.99 (17.76)	67.04 (19.33)	65.04 (18.65)
iNaNs	4.90 (1.67)	4.84 (1.57)	4.87 (1.62)	5.28 (1.56)	5.07 (1.6)	5.17 (1.58)	4.81 (1.65)	5.07 (1.47)	4.94 (1.56)
Env	8.78 (1.71)	8.01 (2.33)	8.39 (2.08)	8.96 (1.48)	8.25 (1.95)	8.6 (1.77)	8.49 (1.71)	8.59 (1.64)	8.54 (1.67)

Key: NCI=Nature Connectedness; NSC=Night Sky Connectedness; WB=Wellbeing; iNaNs: Inclusion of Nature at Night in Self; Env: Looking after the environment

Nature connectedness

The repeated measures ANOVA indicated that there was a significant main effect of trip (Time1/Time2) on nature connectedness ($F=31.38$, $df=270$, $P<0.001$), though no trip type (Day/Overnight) effects were present across all three timepoints ($F=0.30$, $df=270$, $p>0.05$). However, there was a significant interaction effect ($F=9.23$, $df=270$, $p<0.01$, see figure 8). Therefore, when comparing scores at each respective time point, we found that there were no significant differences between the trip types at time-points 1 or 2 respectively ($t=.18$, $df=270$, $p>0.05$; $t=1.03$, $df=270$, $p>0.05$). However, there was a significant difference at time-point 3 ($t=-2.72$, $df=270$, $p<0.01$). This means that:

- Young people attending both day trips and overnight residentials showed independent changes in nature connectedness across time. At baseline (Time 1), both groups had similar levels of nature connectedness (Daytrip: $M=47.23$; Residential: $M=46.7$), indicating comparable starting points. Immediately after the trip (Time 2), both groups showed an increase in nature connectedness (Daytrip: $M=55.43$; Residential: $M=52.18$), with the day trip group increasing by over 8 points, compared to 5 points in the residential group. However, at follow-up (Time 3), group patterns diverged. The day trip group's scores dropped lower than their time-1 levels (baseline), whereas the residential group maintained the gains seen at time-point 2 (Daytrip: $M=44.03$; Residential: $M=51.84$).
- There was no significant between-group difference across all three time points overall, suggesting that when averaged across time, the two groups didn't differ significantly. However, the significant within-group interaction indicates that the way scores changed over time differed between the two groups. Post hoc comparisons revealed that this difference emerged only at Time 3, where the residential group had significantly higher nature connectedness than the day trip group.

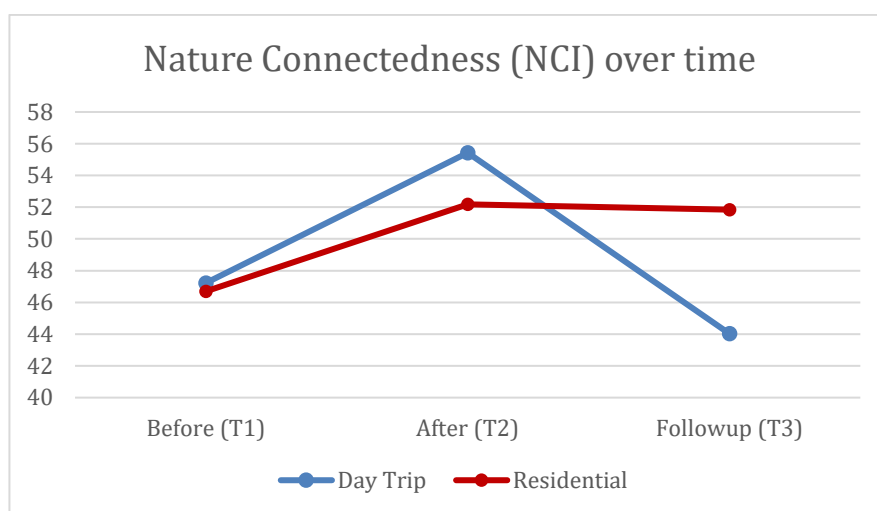


Figure 9: Nature Connectedness Score by trip type over time

In summary:

- **Day trip participants** experienced a **larger immediate increase in nature connectedness**, but this was **not sustained**.
- **Residential trip participants** showed smaller initial gains but subsequently **maintained those increases at follow-up**.

- This suggests that **overnight trips may support longer-lasting improvements in nature connectedness**, while **day trips may offer a more intense but short-lived boost to nature connectedness**.

Importance of looking after nature

The repeated measures ANOVA indicated that there was no significant main effect of trip (Time1/Time2) on how young people viewed the importance of looking after nature ($F=3.11$, $df=270$, $P>0.05$). However, there was a significant main effect of trip type (Day/Overnight) across all three timepoints ($F=6.27$, $df=270$, $p<0.05$), and a significant interaction effect ($F=5.37$, $df=270$, $p<0.05$). Furthermore, when comparing scores at each respective time point, we found that there were significant differences between the type of trip at time-points 1 and 2 ($t=3.12$, $df=270$, $p<0.01$; $t=3.34$, $df=270$, $p<0.001$), although there was no significant difference between the groups at time-point 3 ($t=-.47$, $df=270$, $p>0.05$).

This means that:

- Young people attending both day trips and overnight residential showed independent changes in how they viewed the importance of looking after nature across time. At baseline (Time 1), the day trip group rated this importance higher than the residential group (Day trip: $M=8.78$; Residential: $M=8.01$), suggesting different starting points. Immediately after the trip (Time 2), both groups showed an increase, but the day trip group continued to score higher than the residential group (Daytrip: $M=8.96$; Residential: $M=8.25$). However, at follow-up (Time 3), the two groups showed similar ratings, indicating a convergence in their views (Day trip: $M=8.49$; Residential: $M=8.59$).
- While there was no significant main effect of trip (Time1/Time2), indicating that the trips did not consistently shape changes over time, there was a significant difference between the day and residential trips across all three time points, with the day trip group scoring higher overall which likely reflects their higher baseline level.
- A significant interaction suggests that the pattern of change over time differed between the two groups. Post hoc comparisons revealed that group differences were significant at Time 1 and Time 2 but had disappeared by Time 3.
- Mean values show that those attending the residential trips showed an increase in importance of looking after nature across all 3 time points, whilst those attending the day trip showed an increase from Time 1 to Time 2, but this then decreased between Time 2 and Time 3 and was a little lower than the baseline starting point for this group.

In summary:

- Day trip participants started with more positive views about looking after nature and retained that difference immediately after the trip.
- Residential trip participants began with lower scores but appeared to catch up by follow-up, resulting in no lasting group difference.
- This suggests that **both types of trips can positively influence young people's environmental values**, though the residential trips may foster more gradual but ultimately equal and longer lasting shifts over time.

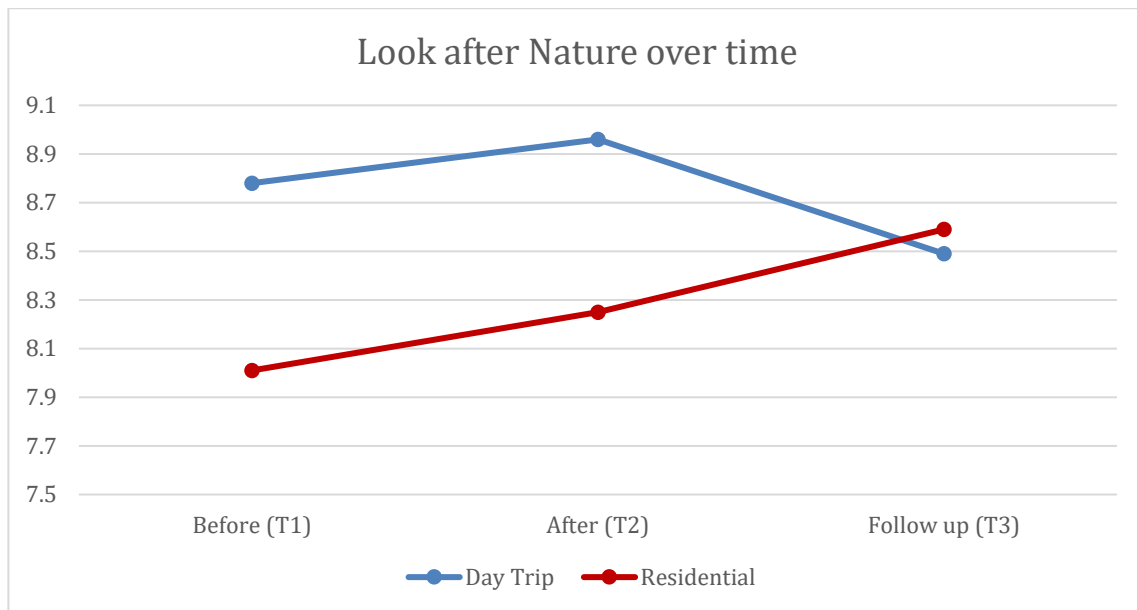


Figure 10: Importance of looking after nature over time

Wellbeing

The repeated measures ANOVA indicated that there was a significant main effect of trip (Time1/Time2) on wellbeing ($F=15.54$, $df=270$, $P<0.001$), though no significant effects of trip type (Day/Overnight) were present across all three timepoints ($F=0.96$, $df=270$, $p>0.05$). However, there was a significant interaction effect ($F=6.22$, $df=270$, $p<0.05$, see figure 10). Therefore, when comparing scores at each respective time point, we found that there were no significant differences between Day and Overnight trips time-points 1 and 2 ($t=-1.25$, $df=270$, $p>0.05$; $t=.53$, $df=270$, $p>0.05$), however there was a significant difference at time-point 3 ($t=-1.8$, $df=270$, $p<0.05$). This means that:

- Young people attending both day trips and overnight residential showed independent changes in wellbeing across time. At baseline (Time 1), both groups had similar levels of wellbeing (Day trip: $M=60.6$; Residential: $M=63.4$), indicating comparable starting points. Immediately after the trip (Time 2), both groups showed an increase in wellbeing (Day trip: $M=67.91$; Residential: $M=66.61$), with the day trip group increasing by over 7 points, compared to 3 points in the residential group. However, at follow-up (Time 3), group patterns diverged. The day trip group's scores dropped almost as low as their time-1 levels (baseline), whereas the residential group maintained the gains seen by time-point 2 (Day trip: $M=62.99$; Residential: $M=67.04$).
- There was no significant difference across all three time points overall, suggesting that when averaged across time, the two groups didn't differ significantly. However, the significant within-group interaction indicates that the way scores changed over time differed between the day trip and overnight groups. Post hoc comparisons revealed that this difference emerged only at Time 3, where the residential group had significantly higher wellbeing than the day trip group.

In summary:

- Day trip young people experienced a larger immediate increase, but this was not sustained.

- Residential trip young people showed smaller initial gains but maintained those gains at follow-up.
- This suggests that **overnight trips may support longer-lasting improvements in wellbeing, while day trips may offer a more intense but short-lived boost.**

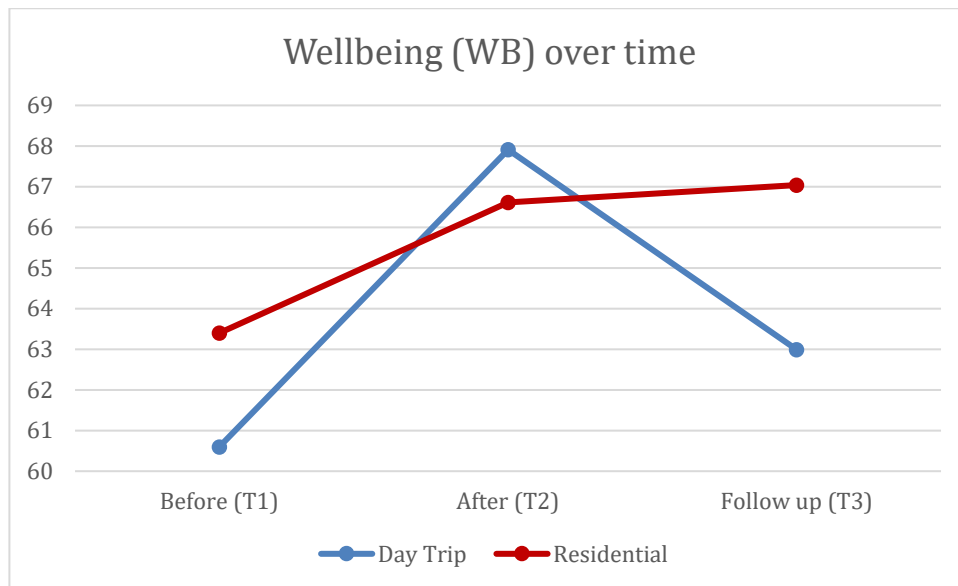


Figure 11: Wellbeing Score by trip type over time

Night Sky Connectedness

The repeated measures ANOVA indicated that there was a significant main effect of trip (Time1/Time2) on night sky connectedness ($F=28.44$, $df=270$, $P<0.001$), although no main effects were seen for type of trip (Day/Overnight) across all three timepoints ($F=0.96$, $df=270$, $p>0.05$). However, there was a significant interaction effect ($F=7.69$, $df=270$, $p<0.01$, see figure 11). Therefore, when comparing scores at each respective time point, we found that there were no significant differences between the Day and Overnight trips at time-points 1 or 2 ($t=.18$, $df=270$, $p>0.05$; $t=.46$, $df=270$, $p>0.05$), but there was a significant difference at time-point 3 ($t=-2.85$, $df=270$, $p<0.01$). This means that:

- Young people attending both day trips and overnight residential showed independent changes in night sky connectedness across time. At baseline (Time 1), both groups had similar levels of night sky connectedness (Day trip: $M=40.78$; Residential: $M=40.51$), indicating comparable starting points. Immediately after the trip (Time 2), both groups showed an increase in night sky connectedness (Day trip: $M=44.51$; Residential: $M=43.88$), with the day trip group increasing by 4 points, compared to 3 points in the residential group. However, at follow-up (Time 3), group patterns diverged. The day trip group's scores dropped lower than their time-1 levels (baseline), whereas the residential group maintained the gains seen at time-point 2 through to time point 3 (Daytrip: $M=39.46$; Residential: $M=43.80$).
- There was no significant difference between the trip types across all three time points overall, suggesting that when averaged across time, the two groups didn't differ significantly. However, the significant within-group interaction indicates that the way scores changed over time differed between the two groups. Post hoc

comparisons revealed that this difference emerged only at Time 3, where the residential group had significantly higher connectedness than the day trip group.

In summary

- Day trip participants experienced a larger immediate increase across all 5 measures, but this was not sustained.
- Residential trip participants showed smaller initial gains and maintained those gains at follow-up.
- This suggests that **overnight trips may support longer-lasting improvements in night sky connectedness, while day trips may offer a more intense but short-lived boost.**

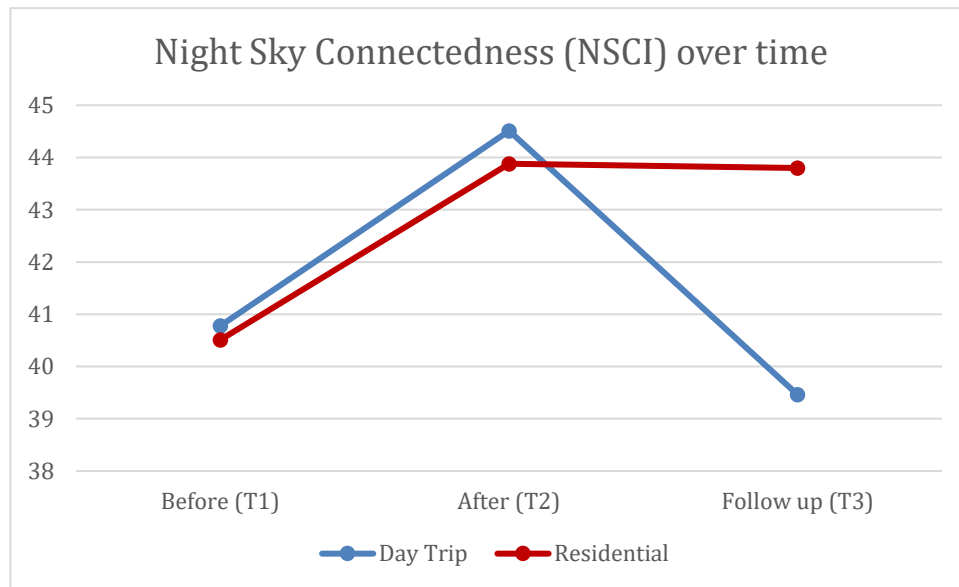


Figure 12: Night Sky Connectedness Score by trip type over time

Inclusion of Nature at Night in Self (Feels part of nature)

The repeated measures ANOVA indicated that there was a significant main effect of trip (Time1/Time2) on inclusion of nature at night in self ($F=9.59$, $df=270$, $P<0.01$). However, no effects for type of trip (Day/Overnight) across all three timepoints were present ($F=0.02$, $df=270$, $p>0.05$). However, there was a significant interaction effect ($F=2.14$, $df=270$, $p<0.01$, see Fig. 13). Therefore, when comparing scores at each respective time point, we found that there were no significant differences between the day and overnight trips at time-point 1, 2 or 3 ($t=.32$, $df=270$, $p>0.05$; $t=1.1$, $df=270$, $p>0.05$; $t=-1.33$, $df=270$, $p>0.05$).

This means that:

- Young people attending both day trips and overnight residential showed independent changes in Night Sky Relatedness across time. At baseline (Time 1), both groups had similar levels of Night Sky Relatedness (Day trip: $M=4.9$; Residential: $M=4.84$), indicating comparable starting points. Immediately after the trip (Time 2), both groups showed an increase in night sky relatedness (Day trip: $M=5.28$; Residential: $M=5.07$), with the day trip group increasing by over 0.38 points, compared to 0.23 points in the residential group. However, at follow-up

(Time 3), group patterns diverged. The day trip group's scores dropped lower than their time-1 levels (baseline), whereas the residential group appeared to maintain gains seen by time-point 2 (Day trip: $M=4.81$; Residential: $M=5.07$). However, the time 3 differences did not quite reach significance.

- There was no significant difference between the trip types across all three time points overall, suggesting that when averaged across time, the two groups didn't differ significantly. However, the significant interaction indicates that the way scores changed over time differed between the two groups. Post hoc comparisons revealed that this difference didn't reach statistical significance, though the trend suggests that the residential group had higher night sky relatedness than the day trip group.

In summary:

- Day trip participants experienced a larger immediate increase, but this was not sustained.
- Residential trip participants showed smaller initial gains and maintained those gains at follow-up.
- The statistical findings suggest that **overnight trips may support longer-lasting improvements in night sky relatedness, while day trips may offer a more intense but short-lived boost.**

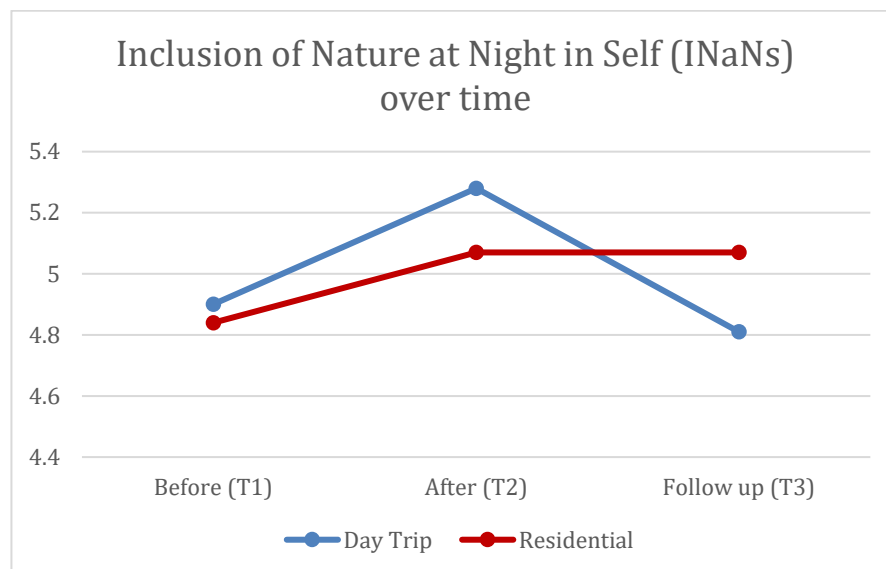


Figure 13: Inclusion of Nature at Night in Self Score by trip type over time

4.4 Young People's experiences of nature-based trips: Qualitative Analysis

Data from the Time 2 data capture activities and the Time 3 open text survey responses were analysed as one large dataset, using the pathways to nature connection initially as a deductive 'lens', namely coding for instances where these pathways were evident. The five pathways to nature connection as described by Lumber et al., (2017) were used:

1. **Contact:** Noticing what is seen, heard, felt, smelled, and tasted.
2. **Beauty:** Noticing and appreciating the aesthetic qualities of nature including shape, colour and form.

3. **Emotion:** Noticing and reflecting on how experiences in nature makes us feel.

4. **Meaning:** Exploring cultural and personal stories around what nature means to us. Using nature or natural symbolism to communicate a concept that is not directly expressed.

5. **Compassion:** A sense of care and love for nature and taking actions to understand, help, or cooperate with it.

After this deductive analysis was completed, an inductive analysis of content outside of the pathways was conducted. Additional inductive codes and themes were developed, and these suggested additional ways the experiences had impacted upon the young people's relationship to self, others or nature.

The findings below present evidence for the pathways to nature connection using verbatim extracts (pseudonymised) from the young people to support this. Following this, the additional patterned data, or inductive themes are presented with supportive quotes. This analysis went beyond 'topic summaries' and reflected explicit, concrete patterns and the 'essence of meaning' that united their observations (Braun & Clarke, 2021). For both phases of analysis, a critical realist position was adopted, and a descriptive or semantic approach to coding was conducted (Braun & Clarke, 2021).

Findings:

To give some context prior to the presentation of the thematic analysis, the young people across both Time 2 and Time 3 described the various activities they experienced and enjoyed which included making bug hotels, collecting leaves and pinecones, learning how flowers grow, and about insects and sea creatures. They described enjoying pond dipping, bat detecting, tree species identification, and how they learned about the connection between farm animals and food, along with map reading, foraging, fire-lighting and shelter building skills. Some who had been on residential experiences positively described their time doing adventure-based activities such as zipwires, tomahawk throwing, high ropes, tunnelling, night-time activities and team games. Others had coastal experiences and so spent time walking on and exploring beaches. Older groups conducted field work for their A level or GCSE studies, and so worked with transects, random sampling and insect identification. The weather influenced much of the data around the activities they liked the least as some of the groups that started in the late autumn had cold and rainy residential.

All pathways to nature connection were present across the dataset, although, as has been found previously (Holland et al., 2024), however the 'meaning' pathway was less evident in young people's responses. The following extracts highlight example responses from across the combined Time 2 and Time 3 data set.

1. Senses:

The young people talked about the many memorable aspects of the activities where they used their senses to engage with their surroundings. This multi-sensory experience was evident as they recalled some of their favourite moments:

'Looking at the deers', 'Petting the cows'. 'Eating the cheese'. 'Feeling different types [types] of trees', 'Hugging trees'.

woching the ferts becus I luff animals [watching the ferrets because I love animals]

I enjoy the silence of nature

I like nature it smells good.

Some also commented on when nature didn't smell good, with awareness of the cow manure *'it stinct lict pupe' [it stinked like poop]* and the food production process- *'The cheese making as it smelt'*.

In some cases, a variety of senses and other pathways were included. For example, in the first two quotes below, seeing a waterfall and nature at nighttime were linked to an appreciation of beauty [beauty pathway]. In the third quote, a change in felt sensation was also experienced highlighting that multiple senses can become engaged in one experience:

Look at the beautiful waterfall

What I will remember the most is going on a night walk because I have never got to go out at night and see the night sky and I thought it was a beautiful experience for me to witness.

Looking up at the sky the ocean seeing the reflection of the moon on the water, beautiful it felt like I was under the water.

It was interesting to note that the day trips to the farms had predominantly senses-pathway responses. The young people on these trips included those with special educational needs and disabilities (SEND) and this finding might be helpful to note for people designing future pathways-inspired interventions, particularly for people in this demographic.

2. Beauty

The young people commented on the beauty of nature in their evaluations of their time immediately after their experiences (Time 2):

I will remember the beautiful views as the sun came through the trees revealing all the gorgeous autumn colours.

I loved the hill because of the beautiful view

The campfire because it was mesmerising

It was beautiful and wonderful to see the night sky

Beauty was also commented on when thinking back on their trips once they returned to school and to their regular routines for example:

I really see the beauty in nature now

In some cases, links between pathways were evident, such as the beauty of nature being a call to take care of it [compassion pathway]:

It is important to take care of nature. Nature is beautiful.

I have realised that nature is actually really beautiful not just at night but in the daytime as well and that we should all respect nature since it has feelings like us too.



Figure 14: Young carers in the Peak District

I learnt to be more respectful and considerate of nature and to find beauty in the natural settling surrounding me

We can see from these more blended pathway quotes that the young people engaged with and experienced nature in a multi-pathway manner.

3. Emotion

This pathway was the most represented pathway across the dataset as clearly the young people had many emotions around being in nature, away from home, with friends, doing new activities, and, in some cases, in wet and cold weather. Negative emotions mostly described feeling wet and cold, and in some cases not enjoying some of the activities such as bug hunting or feeling a little homesick:

mounting [mountain] climbing was stress full and mini beast hunt – I don't like bugs.

I want to go home and be with my mum

The weather was cold, and the woods was even more freezing and such a depressing mood!

However, the majority of the comments were filled with positive emotions, and some paired emotions that changed with their accomplishments. For example:

When I went on the zipline I felt scared but then I was happy because it was fun

At first I felt scared [night time bat hunting] and then I became brave

Some found their emotions were heightened:

Scared and excited – I liked the bats

I enjoyed the rock climbing because I made it to the top and I climbing with my friend and I felt very active and excited also hyper.

For others, nature had a calming effect, and being in a calm state of mind also enhanced the experience, or helped them reduce more typical negative emotions:

I've learnt how happy I feel about being in a natural environment and how it helps me to calm and relax myself.

When I was outside in the dark and looking at the stars I felt calm

On the trip it was quite calm, I was relaxed all the way throughout I felt so calm.

I got to be really calm and get all the bad things / thoughts away from me.

Others commented on how specific sensory activities helped to support their positive mood and awareness:

huging trees mademe [hugging trees made me] feel good

hugging the trees make me very happy and made me think about all the different trees. it made me think about all of the animals in the outside world

I realised that being in nature is very relaxing because there is no artificial sound like cars and music.

Others found the environment provided a way to feel less stressed:

I am happiest when surrounded by nature and away from the stresses of regular life.

Being by the sea was quite nice and it made me feel more relaxed regarding the whole project.

The range of emotions across the data set revealed that the young people experienced a broad range of feelings and sensations during their time in nature, and this reflects the challenges of being away from home, being in a new environment, doing activities that pushed them out of their comfort zones, sleeping in tents or inside in group accommodation, and having time in the natural elements and sometimes changeable British weather.



Figure 15: Young people out on a damp day

4. Meaning

Meaning was less explicit in the dataset, and this echoes findings from the GG1 evaluation (Holland et al., 2024). Two extracts that spoke to this pathway combine beauty and a sense of meaning:

I understand the meaning it [nature] has to people and different people view nature different but one thing in common is it is beautiful.

I have learned that nature is beautiful and to feel complete in this life you need to be at one with the most beautiful part of this world (nature).

The symbolic associations around nature may not have been understood by younger people, so this pathway's clear lack of support perhaps suggests that for young people, and in this case those from areas of social deprivation, other pathways to nature connection were more relevant to them.

5. Compassion

The compassion pathway was evident across the residential Time 3 data set, but not in the Time 2 day trip data. Examples came when the young people reflected back on their time away from home on their residential trips, and they wrote about the things they had learned or been changed by. Their responses spoke to their deeper awareness of the natural world and the care and protection they felt towards it or understood in a more direct way as a result of their trip. Many reported having changes in these feelings of protection.

I have learned that you should always treat nature with respect and kindness. You should never disrespect any thing that is apart of nature.

I want to look after nature more now than before

I have learnt that you need to look after nature because if you don't then animals will die

Loving animals learning to not harm and take care and give them peace and calm

it made me think about [about] nature so much it made me think about all of the trees get cut down and about the minibeasts losing there homes [minibeasts losing their homes]



Figure 16: Young People take part in a beach clean up

I feel that I am more aware of nature around me and the need to preserve it.

The young people clearly had a greater awareness of the natural world and the role humans have in maintaining a more balanced ecosystem as a result of their trips. Some also spoke of this compassion and connection leaving them with more motivation to do pro-environmental behaviours. The following extracts suggest their positive intentions:

I have felt that we should treat nature with respect and care and put stuff in the bin instead of the floor or recycle it

that I need to take care of nature more because nature is apart of this world and universe

I want to be better at looking after my environment even when it's not my fault. I will always look after minibeasts and animals outside.

These extracts highlight the increased experience of care for animals, plants and nature more broadly.

Secondary Inductive Analysis

In addition to the above pathway-specific analysis, the secondary inductive analysis resulted in four additional themes being developed. These highlight the additional benefits from the trips in the natural world and are as follows:

6. Intra and inter-personal awareness

The young people often commented on how much they enjoyed being outside with their friends, making new friends and, in some cases, changes in relationships with teaching

staff were also evident (interpersonal awareness). They also spoke about understanding themselves better or learning more about what they liked or could achieve as independent people (intrapersonal awareness). The first extract highlights a combination of this, with the young person stating that they learned several things about themselves on the trip such as emotional self-regulation, enhanced emotion, interpersonal skills and an enhanced sense of self- motivation:

Be patient, clam, excitement for exploring new places, be as a team, always work hard to achieve my goals and definitely meeting new friends.

6a Intrapersonal awareness

Other examples of intrapersonal awareness included aspects about their broader sense of self and also their relationship to spending time away from home and out in nature/outdoors:

I can do a lot more then [than] I thought

I have learnt to be a bit more independant

Some discussed a greater awareness of their own learning style and how they engaged with new experiences:

That I am capable of coming up with my own good ideas and that I can have fun as long as I also try my best

I have learned to not be afraid to show my curiosity regarding learning new things

Another learned new ways to support their engagement:

I learned how to be patient because on the trip there I needed to be patient and I need to go out more in the magical, unreal nature



Figure 17: Young people from Leigh Academy face their fears during a residential trip

Others found a more *'brave and resilient'* part of themselves:

I have learnt that I am not as scared of what is in nature than I was before the trip and that it is fun being in nature.

I am not scared of the dark anymore

I faced my fear!

Finally, some described the importance of the time away from their parents as being essential to their understandings of themselves:

I have also learnt that I can be brave without my parents and be strong so I could use the skill in the real world when I grow up or when I go to somewhere my parents won't be able to be there with me.

I have become less afraid and anxious about leaving my parents.

The above reveal a broad range of intrapersonal insights from the young people. Additionally, experiences within the group were also viewed in positive ways as is reflected next.

6b Interpersonal awareness

The young people frequently commented that some of the best aspects of the trip were around sharing the experience with their friends and the *'power of friendship'*, the quotes below highlight this as they described what they enjoyed the most:

Talking with my friends (makes the trip better)

Being outside with my friends exploring

Spending time with people and doing activities together



Figure 18: Young people from Gamesley Community Primary School and Haveley Hay Primary School experience a rainy walk

One also commented that the experience was facilitative of new friendships being forged (pseudonyms are used in the extract below):

The one thing I will remember the most is when me Jack and Karim were playing tig for the entirety of the playtime. We had lots of fun and that's also when me and Karim became friends

Another spoke of working together within a group as being memorable:

How we made our own tent because we had to use teamwork and lots of hard work.

Some mentioned the relationship and memories with the teachers and instructors as being integral to the experience:

the teachers really cared about us

The time that I enjoyed with teachers and friends all around me.

One of the things that I remember was a teacher, that was super fast and I had loads of fun with him.

The group-focused element of the outdoor experience was clearly one aspect of the trips that enhanced their time in nature and was positive and memorable for the young people.

7. Fascination through learning:

The young people's comments were full of descriptions of the learning they gained through their trip. One young person summarised, *I found out a lot and I loved the learning*. As we explored in theme 6 *Intra- and inter-personal awareness*, they learned about themselves, and, in theme 5 *Compassion*, we saw how, in many cases, they learned more about the importance of caring for nature. More broadly, they wrote about the many aspects of nature they now knew more about, and in some cases, other new experiences such as new foods they ate also left a lasting impression on them. They picked out many aspects of the trip that they remembered, from learning about '*animals and nature*', '*insects and bees*' '*differen [different] trees and breeds of animals*', '*the importance of trees*', to '*light pollution effects*'. The following extracts highlight how this information was exciting for them:



Figure 19: Feeding the animals during a farm visit

that nature isn't just simple it's full of life and interesting things. From this trip, I learned that there are over 100 million beings in a handful of compost

pool dipping because I didn't know all them things were in the pond water

I didnt know nacher [nature] was that intresting [interesting] and learning about how nacher is realy intresting

On the trip I have learnt all about what it is like to be in complete darkness, all about farm animals and about all the amazing things in nature we might have not noticed before

Every leaf has its own meaning

I have learned about myself is that I love be under the night sky

Some reflected on the trip's impact on their motivation and engagement in learning and clarity in their future academic path:

I have found myself being more thoughtful about what I can do to protect the natural world, and have also been more interested in the night sky. Me and a few of my friends who were also on the trip have also been using iNaturalist regularly since we were informed about it!

Being more interested in geography and wanting to persue [pursue] it further at university.

We can see that some of these learnings link to deeper value-based connections, and through this learning many of the young people were able to consciously link their ways of being in nature or appreciating nature with a greater affinity or connectedness to it. This is explored in the next theme. It appears that the way the learning opportunities were presented to the young people evoked rich and memorable learning experiences.



Figure 20: Examining the flora and fauna during a residential trip

8. 'Part of nature': personal connection to nature

Many of the participants used the term nature connection in their evaluation and spoke about their deepened relationship to the natural world. Some of these extracts also link to the pathway themes, however, they add a level of personal connection in which they clarify that they feel part of nature themselves, not just as its steward or protector, but as an integral part of it.

it made me feel part of nature more and understand we need to keep it safe and healthy because the trees and plants give us oxogen [oxygen]

I feel more apart of nature now

I have learned how to be a part of the nature

I have learned that nature is beautiful and to feel complete in this life you need to be at one with the most beautiful part of this world (nature).

Some of the young people also discussed a deepening of their relationship to nature as a result of the trip:

The trip made me feel closer to nature than I was before

I've always felt a strong connection with nature but this trip truly confirmed my love for nature.

The nighttime experiences created new experiences for the connection to the wider world for some, with one student capturing this shared sentiment by commenting that the thing

that had changed for them was *my relationship with the sky, stars, universe and nature*. Another commented:

I feel as if I have strengthened my relationship with nature especially nature at night. This was due to being around the camp in the free time and going to the beach and on walks.

In addition to this deeper connection to nature, some of the young people also noted in their Time 3 evaluations how their behaviour or attitude to nature and the environment had changed as a result of their experience on their trip. This is explored in the final theme below.

9. Post-trip behavioural and attitudinal changes

This theme captures the young people's behaviours and attitudes beyond what they became aware of or learned about. It highlights examples of behaviours that they reported as being different after their trips. In some cases, the changes reflected positive behaviours they had added, including following up on interests they had become more aware of on their trips:

I learned that animals aren't only just pets but loving and unrestimated [underestimated] creatures which are very looked down on and my relationship with them grew stronger after our school trip and I visited more animal showcases / zoo's.

I went to visit the Yorkshire Dales with mum

I did more walking with dad.

I love going advenchers [adventures] even more

I go and look at the sky at night

I've learned that I like nature more now I go out often and go for walks with my family

Another described that they are now *being carefull [careful] when walking and not disturbing animals habitats*. Several young people reported changing their patterns around how they spent their time post-trip:

I have changed by going outside more often

i walk a lot in the park to see the nature

It just made me feel like I was apart of nature even more and made me enjoy nature more than ever so I hang out in nature more often now that I went to [location D].

Others described lifestyle changes:

I have been more active and more respectful to nature and saw more nature

I eat more fruits and vegetables

Finally, several young people highlighted negative behaviours they sought to change in others or themselves:

It made me more determinded [determined] to stop littering

It made me not taking part in fires because trees or logs are apart of nature.

I now respect [respect] the environment [environment] because in my old house I didnt respect it because my dogs ate rats and I ripped trees

This final theme reflects behavioural changes beyond intentions that were reported by the young people 4-6 weeks after their trip and gives us insights into some of the longer-lasting impact of the residential experiences.

Conclusion

In conclusion, as one young person succinctly wrote *nature can be experienced [experienced] in different ways*. A range of impactful elements were evident from the time they spent outside in nature. All the pathways to nature connection were represented, although the meaning pathway appeared to be less relevant as a way through which this sample of young people related to nature. The students had a wide range of emotional responses, felt more connected to the care and stewardship of nature [compassion pathway], and a range of sensory experiences were revealed in how they talked about their trips [senses pathway]. The beauty of nature was experienced by many on residential trips [beauty pathway]. Day trips tended to result in sensory experiences being described, particularly from young people with SEND. In addition to the pathways to nature connectedness, inductive thematic analysis revealed other impactful aspects of the time spent outdoors as young people experienced both intra and inter-personal development, embraced learning with fascination, and established or deepened their connection to nature, with some resulting behavioural changes being reported.



Figure 21: A group of young people from Westfield Community School

4.5 Teacher insights: Qualitative Analysis

The findings presented here highlight the main cross case themes with quotes from the four participants used in support. In total four themes were developed: Trip as a valued asset with barriers to uptake, The importance of stretch, Novel experiences, and Changed

relationships, and these are presented below. Additional impact case study information is provided from one of the participants, which demonstrates awareness of the overwhelmingly positive long-term impact and implications of these short courses for young people.

The young people ranged in age between 9-18, some in primary school, some in secondary school and one group that conducted A- level field work as the focus of their trip.

Key themes:

1. Trip as a valued asset with barriers to uptake: *it was a fantastic opportunity for us*

The teachers saw the trip as an '*opportunity*' (P1, P3, P4), an amazing offer for the students who would not ordinarily be able to go away and experience a programme like this. One teacher commented:

considering the catchment area that we're in- very low-income catchment area- it was a fantastic opportunity for us and trying to get that across to the parents that like this is a trip that would normally cost a lot of money (P1)

The teachers were aware of the benefits of this opportunity, for example bringing learning to life for practical examination preparation for A levels:

they did loads of like practical field work that, and a lot of it is stuff that we sort of talk about in the course at school, but they would never actually have the opportunity to do so things like working actually in rivers so they did lots of that where they got into the river (P3)

P4 also saw the wider ramifications of this experience for the young people:

without that opportunity some of them will never see this and also this has the massive effect on their growth in life as well, not only just their ambitions and also towards it, so yeah, massive (P4)

The teachers were acutely aware of the financial barriers to participation that the young people and their families faced in accessing trips:

even with the pupil premium discount that we give children they can't all afford to go, unfortunately (P2)

a lot of these students you have right now will not get a chance to go on it because their parents can't afford it or the financial difficulties (P4)

After being granted access to places, they also became aware of other perhaps less recognised hurdles too. There were cultural barriers around letting children go away and social limitations around children leaving their hometowns:

I think that one of the most eye opening things for me in terms of the planning of it all is that how many, because I thought as soon as we found out that we had been funded the trip when we had the sixty places, my thought, and maybe it was a bit delusional for me to think so, was that we're going to have sixty children uptake on this trip, they're going to grab the opportunity with both hands, actually how many of the parents weren't comfortable with it, and how many of the children weren't comfortable with it, and I and I guess it's how to bridge that gap with them (P1)

a lot of it is financially, just to get parents out here and for them and also so our students don't even leave the area they're in to even get out (P4).

as far as I'm aware, they don't get out of this area very often and lots of them don't actually do stuff sort of outside of school, especially like nature-based things (P3)



Figure 22: Exploring on a rainy day

In some cases, teachers and school staff had to work extremely hard to help the students and their families appreciate this as a valuable experience.

I think hand on heart we did do everything that we could try and get those children to go, we were translating letters into different languages, we were inviting parents in. And so I think just actually culturally, some parents were not happy with it and also some children didn't want to go...we also knew that it was going to be hard for the parents to let their children go and for the children to be away from their parents so I think even the aspect of them staying away from their parents was a massive deal for a lot of our children, huge. (P1)

Some of the barriers were less visible until the teachers and school staff began to understand aspects of the young people's lives at home that were not apparent in their school-related conversations or understandings. As a result, the children who, despite these challenges, attended the trips and were supported successfully on them, were able to benefit greatly from the experience, and, as we see in a later theme, this also impacted positively on the child's relationship to the staff and the staff's understanding of that child:

but it really opened my eyes to how much the children and their parents have going on at home that are impacting them, going on the trip, but actually that stuff's impacting them every single day. So a lot of the parents were saying more than I thought we had about two or three children, they were saying 'they still wet the bed, they still are wearing nappies' and you think in year five that that's not happening and actually you're, 'OK That's fine, that's something that we can deal with, we can sort that out whilst we're on the trip... So I think in that aspect it opened our eyes and actually a lot of those children that were

having those issues, their parents were happy for them to go as long as we were happy to take them' (P1).

The trip was both an opportunity and a challenge from the outset for many of the students and families, even to accept a place. The following theme explores the concept of 'stretch' that continued on the residential programme for the young people as reported by the staff.

2. The importance of stretch: *they just surprised themselves so much*

The teachers described how the young people were stretched outside of their comfort zones during many aspects of the trip.

The activities they do it is phenomenal because they're out of their comfort zone massively because they're never in this environment (P4)

This facilitated growth, confidence building, resilience and pride. The young people were observed to tackle challenges and succeed in activities that initially they found difficult, unnerving or uncomfortable in some way. These experiences supported the reappraisal of the situation to be one that was more positive, and, in some cases, their understanding of themselves and what they could do changed.

Teachers reported the young people did things they found hard or resisted:

They sort of were able to push themselves and show resilience and over the course of the week, because there was quite a lot of repetition of the climbing activities, some of the children that had wanted to start earlier in the week, by the end, were sort of giving it a go. (P2)

P1 described a dramatic change in one of her students:

So one of the children in my class, she's very, very typical girl masking ASD so don't see very much of it in school-minute she goes home, absolutely explodes. Mum always says 'she doesn't sleep, the smallest thing will set her off. If she's anxious, that will set her off'. But obviously she holds, in a school day she can hold it in but she wasn't going for just a school day she was going for two days so we were very aware that she might find this very difficult and we'd had lots of conversations with her leading up to it like 'no one is going to force you to do anything if you say you want to do it, and then you get there and you change your mind, if you're up there and you change your mind, fine'. And she did everything, she did absolutely everything, and she came back and she was like, 'Miss', she was like 'I did everything' she was like, 'I did the zip wire, I did the tunnelling'. She was so proud of herself (P1)

P4 also noticed large changes in the students they saw on residential:

you can see how even with two days away from home or an evening away from home like at location X, the difference in the character building that child has, and that the confidence that child has from being outside their comfort zone and to be able to cope with it has been vastly transformed in themselves (P4)

The group sense of discomfort was described by P3, yet once a change in behaviour was modelled by some of the young people, others also pushed themselves and got more engaged:

they were asked to get into a river and they were all, like, completely against it to begin with and didn't want to. And then a couple of them went for it and then they were all just in the river and they loved it (P3)



Figure 23: Young people experience freshwater swimming

Being away from home was a huge challenge, which was something that also led to changes in feelings of agency, responsibility and independence in the young people as reported by the staff:

They very much came back with that sense of pride in what they had managed to achieve in terms of the activities, but also that 'I've just spent two nights away from my mum and dad. I don't really do that. I helped with the cooking. I helped with the cleaning. I had to make sure I got up in the morning, I had to make sure I was showered before a certain time of morning without my mum or my dad or my parent or my carer pushing me to do that' (P1)

The residential experience stretched the young people, and also led to them experiencing new things, which are described in the next theme.

3. **Novel experiences:** *they'd never seen a deer before*

The teachers reported the novelty of the experiences for the young people, many of whom came from urban areas in England. The bus drive out from the city to the countryside provided new sights for them and gave the staff clearer insights into how different it was for the young people to be away from home:

even just the bus drive there when you sort of leave London, which a lot of them do really infrequently, they sort of start to spot the change in their surroundings. I suppose it'll bring it home how difficult is for a lot of these children, or how infrequently they get out of their immediate surroundings. It's quite powerful (P4)

the school here is in a very deprived area and lots of our students have, like, barely ever left the town that we're in rather than and that's it. So they've never, they've never had that experience. I think even the drive there, and we were going down country roads and they've never seen that. They'd never seen country roads before, like single track and they were like they were concerned about driving down there because they were so small (P3)

Being on site at the residential offered new views for the young people, who reportedly shared their responses to this with the staff:

I'm sat in [youth hostel location] right now, but they don't get the views in X City centre, you don't get this. You may get a park which is very, very small surrounded by housing estates, but they would not get the view they got there. They wake up in the morning, they go 'Sir, look at the view' so it's nice. (P4)

P4 also noted some other benefits of these novel experiences, one a cooked breakfast every morning:

a hot breakfast in the morning- Some of the students will never get. And the fact that every child matters here in terms of like if they're still hungry, let's do some more food for them, that's fine. And no one's left behind. It's that moment of the student feels warm and excited and feels welcomed- it's massive.

The activities also exposed the young people to new sights, sounds and skills:

they'd never seen a deer before and so I think for a lot of them, it was just that exposure to those things that you would see in nature that they're just not sure about (P1)

P4 also described the new animals the young people saw and got excited about:

They've seen cows and sheep they've never seen before. One of the students thought it was a dinosaur at one point- it was just a cow (P4)

Sir we saw a squirrel', but it was the moment of like, they've never seen a squirrel before. But that was for them it was like it was an opening moment (P4)

P2 shared that the nighttime group experience was novel and memorable for the young people:

I think the campfire was really lovely and something that they wouldn't normally experience and just them sort of singing songs all together under the night sky and on the walk back when they sort of said, 'look the stars!' and they could see the stars, which they can't in City L (P2)



Figure 24: Meeting new animals during a farm visit

New skills were also developed that were novel:

looking at species diversity and all of these other things it was brilliant, looking at moss as well, which none of them I think would have probably ever looked at or considered before (P3)

P4 noted different sensory experiences that were new to the young people from inner city backgrounds:

And then there's a part of session that they said just be still don't need to say anything. Don't talk. And just listen to what's around them and some students would never hear that kind of that silence before. They always hear the police sirens, quite a lot, and they'll always hear cars around, hot inner city state estate that they're in, so they were. It's never, there's never a quiet moment in their lives.

In some cases, novel experiences were also around the freedom the young people had. The teachers noticed that the students on the trips particularly enjoyed the less structured activities, that were self-led (i.e. they could do with their peers, or with their schoolteacher, but it was not a scheduled instructor-led activity). Staff described the positive responses to these activities as an *opportunity to sort of engage with things in a way of their choice* (P2) and how these facilitated exploration, agency, intrinsic motivation and enhanced group experiences for the young people. P2 particularly described how less structured activities were the highlight of her students' residential experience:

Well, there was a lot of mud. It was really, really muddy so they were able to sort of like just absolutely get filthy in a way they're probably not allowed to here. Well, I mean, we're in the middle of [City L], so obviously there's like parks and things, but they're not regularly in a place even if it rains a lot that would be very muddy and I don't suppose they're often wearing clothes that they've specifically put on to be able to get dirty so they were able to just sort of get absolutely filthy without any, about worrying about going home and saying 'why have we been in the mud?' because you know on the kit list we were very clear like it needs to be clothes that you don't mind getting muddy... They were able to, uninhibited, just sort of really get stuck in there, and it's probably more mud than they've ever seen in their lives... they just kept asking, like 'can we just get in the mud?' basically or 'can I lie in the mud?'... I think something about just being away for two days, wearing your muddy clothes like, just accepting that you were going to be muddy for the next 48 hours of your life. It's quite freeing...

there was a tunnelling activity, which was like self-led so it wasn't with the instructor, I just took them myself and they had the absolute best time in the world. They sort of kept saying 'can we organise a tunnelling trip? Can we organise another trip from school just to go in these underground tunnels?'. And they really wanted to, like, take ownership of that times and 'Miss can we?' like 'we're going to organise our own games' and they did a lot of teamwork and sort of like organisation and 'you go there and you go there' -just something they would never have got to do here at school and they were absolutely obsessed with these tunnels, and, they still talk about the tunnels.(P2)

P4 also noted the power of the 'off curriculum' aspects of the experience and giving the students less directive approaches to their learning:

this is a moment for them to be off curriculum and to open there and to be themselves and be what they want to be and kind of like taking and run with the knowledge that they learn is massive...the overnight stay, has a massive impact just to give them the freedom to be away from home, the freedom to give them a voice, and not be told this is what you need

to do, but also be told to open up and be themselves and be that what they want to be. At home, I think they're not given the opportunity to grow fully because they're not given that opportunity – with these students. But in this moment it's to be themselves and be what they want to be and not be told by a member of staff, 'this is what you need to learn and what you need to do' it's them to be understanding and to be done it.

This theme highlights the importance of getting young people away to the countryside to expand their awareness of life outside their usual lives, and how the time and space in nature both as part of structured and less structured activities helped them have fun, explore, learn new things and experience 'opening' moments. This 'opening' is explored in more detail in theme 4.

1. Changed relationships: *it's had a much bigger impact than just going on a trip.*

Across the data set, staff all described the changes they saw in the students, and particularly how they related to other people including their peers, and the teachers and staff supporting them. In some cases, staff recognised their own change in perception about the young people. The teachers also reported changes the parents' noticed about their children once they returned home. This theme contains subthemes, and each of these are explored in turn, however P1 summarised the impact of the trip on the relationships the young people had with themselves, their peers and their teachers to set this up contextually:

I'd say the biggest takeaways has they've got to be the relationships that they've built with people and the relationships with themselves as well I think I say that is the hugest take away from the trip for them to realise that they could do things that they couldn't do and that actually all those adults that were saying that something was going to happen or not going to happen or I didn't have to do something was true and I can trust those people [staff] now and so it meant that when they came back to school, they were like, 'oh, OK, like they're like human beings and they said they were going to do something, and then they did it and so actually like it's all right'. And I think like in with them like making mistakes and things like that it's the same thing that actually 'it's just it is just gonna be OK, like everything's fine'. So yeah, definitely an impact on them in so many ways, but I'd say their relationships with adults, with each other, with themselves, the biggest take away'.

Subtheme 4a: Changes in relationship with peers

The staff all mentioned the changes in more positive interactions and inclusive behaviours of the young people, both on the residential and upon their return to their normal routines. In grouping the children in advance of the trip, P1 made sure each person had one friend with them but told them '*you might not be with all of your friends*'. Working with this mixed group facilitated changes in relationships while on the trip as they reported:

it cemented friendships that were already in place, but it allowed for them to build new ones...they were so supportive of each other like 'you can do it' (P1)

P3 described how the trip created more inclusive friendly cross-year interactions:

I think just as a group, they're much more like friendly with each other. I think because they were put in that sort of close situation for three day-not that they weren't nice to each other, but they were, they always were- but just like speaking to each other more and like, they're not worried about being in different groups and stuff like that because when they were there, they were working with other people. So I think even without them realising it,

they've sort of become friends with other people in that year, groups and across their year groups.



Figure 25: Young people working together in the woodland

In some cases, the activities facilitated situations where the young people adopted different roles compared to those they assumed in the classroom, for example in the case reported by P2, a non-academic student was given an opportunity to lead and ‘shine’:

Some of the tunnelling they were like, ‘I’ll come with you. I’ll bring my torch as well so we can do it together’. And these are children that would never normally have anything to do with each other and so I think it allowed those elements of their personality to shine through and actually some of our children, another child that I’m thinking of, not so super high ability in the classroom, wouldn’t necessarily be someone that would feel comfortable helping somebody else with they’re learning but actually jumping off of a zip wire going in and doing some tunnelling, not something that made him nervous. So he was able to adopt that that role of helping somebody else, which was really nice and then it allows them...I think they found like a new level of respect for each other in a way. They were like, oh, ‘OK, I’ve not seen that side of you before’ and that made a huge difference to them, I think. (P2)

P4 described a reflection activity where the young people learned to listen with respect and non-judgment to each other as they opened up to the group. They present this in a way that suggests this way of listening contrasted expected responses:

We asked them to be quiet in that moment to be quiet and just to reflect. It’s a moment of realisation, for some of them, realisation of what they what they want in life and when they hear other students say, they go around the campfire itself, it’s lovely and they hear everyone else’s, no one judging, no one’s judging that moment, no one’s making fun of that moment, and everyone’s just taking it in, which is really, really nice.

P3 described the how the residential had facilitated a more friendly cohort post-trip:

Yeah, that's what I mean when I say they're being nicer to each other or they're being more friendly to each other, like I can't imagine in our six form area they would have all sat and had a chat like that, whereas now they'll do and they will say hello to each other as well when we're out in the corridors and stuff like that, which is just really nice and that's got, I mean, I know this is all about like nature, but that's not really got anything to do with being in nature, it's just being them all being together and in that space, which was, it's just so nice to see.

The stepping away from technology, habitual patterns, school and family was seen as being important to support this change in how the young people interacted with each other, and allowed them to have fun:

students are very, very closed off with social media and aspects, things like that. And having that moment of no phones in nature, they talk a lot more, which is nice and they're back to being children (P4)

This relieving of pressure was something P4 noted, and this ability to have fun, loosen the traditional lines between the students and the teachers may also have facilitated the changes in relationships relayed by the interviewees that is explored in the next theme.

Subtheme 4b Change in relationships with teachers

The young people were reported by some staff to see their teachers and other supportive adults who were on the trip in a new light, which fostered a warmer relationship with them. In some instances, the staff stood beside the young people as learners so were no longer 'in charge' when activities were led by the residential centre staff. At other times, the teachers supported them when they faced challenges before and during the trip. P1 described:

they see you in a different dynamic. They're not seeing you at the front all the time, you're the teacher, you're telling them what to do. Actually, some of the activities are instructor led, I'm listening as a student just as much as you are, I don't know how to zip wire, I don't know how to strap myself on. They see I guess a little bit more vulnerability from you and a bit more like you're an actual person, not just a teacher...because of those adults that went, now have these beautiful relationships. I mean, when Mrs S, one of the adults, when she comes into class and my children are like 'Mrs S!' Like they just absolutely adore her and it's, they just had fun the whole week and now they trust her because she, they were there and they were doing something really scary and it was all OK. It was fine.

The trust and openness between the students and staff was also noted. P4 stated:

students get to open up to you and they feel that they can talk to you

Overall, the experiences on the trip appeared to break down barriers between the young people and adults:

really nice sort of new friendships that sort of sprung up, people that didn't talk to each other before because they'd been in a group together or perhaps an adult that they don't normally speak to either so they were able to sort of engage with adults about things that had happened on the trip which gave them, gives them sort of a conversation starter, I suppose, to start conversations with various people. That's quite nice (P2)

P3 described how some of the young people's motivation about learning was greatly enhanced by an activity on the trip whereby the leader showed them an app to track

wildlife and plants- and this changed their teacher-student relationship positively upon return to school:

three girls in year 13 who did download the I-naturalist app like they show me it's at least once a week, they come and show me what they've uploaded onto the app because they have to like take pictures of different organisms and stuff and then they get really excited when their image gets like reviewed by other people on the app and they love it like so one of them is, she's just obsessed with it and because she wants to keep uploading, she's uploading like common pigeons outside and stuff like that just because she loves the app so much. But yeah, it's given it's kind of given that starting point of conversation which we probably wouldn't have really had before.

P4 was heartened when the young people on the trip verbally acknowledged the staff in a gratitude circle one evening:

What they're grateful for and it was 'we're grateful for the staff that are here just to help us go and do stuff' which is nice



Figure 26: Young people sharing what they have found with the group leader

P3 also recognised improved relationship with the young people they went away with:

I think it's improved my relationship with them as well because I'm the only person that teaches those classes. So they saw me in a different light as well and I saw them in a different light and it means that we've had conversations about things afterwards. And yeah, it's just been it was, it was really nice. I think it has a, well now that I'm thinking about it even more like outside of it, it's had a much bigger impact than just going on a trip.

P4 described a relationship change reported by a new member of staff they recruited to join the young people on the trip:

I'm getting 'good morning's, 'Hi, Miss, are you OK Miss?' in the corridor from students that she took on a trip and she would never, the kids have never said that to her before, they'll

have walked past her. So just the outlook on them being able to say hello to people and be open to people as well (P4)

The staff also, at times, revisited their assumptions and perceptions of the students. For example, P3 described a 3-hour free time slot where the young people had a choice to do as they wished one evening, and the teachers stepped back:

And we sort of left them to it. And we, me and my colleague were a little bit worried about it and worried about them being on their own. And there was this one night where we went downstairs to go and just to check on them and see how they were and we could hear nothing. And we were like, Oh my goodness, like, what are they doing? And we went in and they were all sat in a circle playing a game that they'd learned at the campfire. And it was so cute. And I was just like, why was I worried about you? You're all just sat here, like, sweetly playing this game. And it was all like the characters in the class as well that I would never expect to sit there and play a game like that... they never felt the need to do anything, not stupid, but maybe what I would have expected them to do. Maybe my expectations of them were lower than they should have been, but yeah, I just yeah, it was, I think it was just really lovely. (P3)

P4 recognised the powerful change that was enabled by supporting the young people during times of stretch and challenge, and how this facilitated the shift in the interpersonal dynamic both ways:

until you see a student at the most vulnerable state, which is in somewhere they're not comfortable, they don't know where they are, in the middle of a field with some sheep or some cows or whatever, when you get to school, it's that, the respect that student has for a member of staff is massive because you're the only who's been there to help them out. You're the one they needed. You support them. But also it's their warmth to open up to you. So this moment, this environment, this kind of the generation project and YHA, it changes their outlooks and some students are now who don't misbehave because of this, because they got given an opportunity and also if I walk into a room with students and that student's kicking off they'll stop, 'Oh, Sir's here' and it's that respect they have as well it's massive.

This interpersonal change between the teachers and the students was reported across all interviewees and indicates the shared impact of these positively changed staff-student relationships.

In conclusion, the thematic analysis of the teachers' experiences of supporting young people on the residential trips give insight into the challenges of engaging families and young people to accept a place, and the stretch that occurs when they do. However, the personal and relational changes that the trip facilitated were reported as positive, and in some cases, transformational.

Impact case study: *Their whole outlook on school life changed*

P4 was a staff member who had supported a variety of groups across the GG2 and offered insight into the personal changes they had seen in the young people as a result of attending the residential experiences. They reported that the shifts in young people were substantial both in relation to school and their sense of their future:

the impact on school is massive that I see in school and how they grow as individuals, but also how, what they take away from this knowledge and how they put it into school and their personal life as well is massive.

P4 also discussed the improved social skills of the young people and their greater awareness of taking care of both the natural environment but also the shared residential space:

obviously it's about learning about the environment and what the sensitivity of the environment and area, but also just about how they change their mindset to how they live their life so the team here will find it quite funny, they'll still tell you about students, just social skills as well, they learn social skills, but they'll come into, come into here, actually this morning they've, I always tell them the history about the YHA, but also they've come back from their activity wanting to support the YHA so they've hoovered all their rooms, they've taken all the bedding off their beds, they put it all outside the room, they've hoovered the corridors, they've hoovered the lounge room right now, just to make sure they look after the place, which is nice.

some of those students would never have taken their bedding off in their life and some have never hoovered in their life and that kind of thing, not just Generation Green, but also the effect that's had to looking out for the outside, was now coming into the inside to look after the place they're in.

They described the 'opening' of awareness around options for some of the young people who were less academic or who had SEND and had not perceived they had many options after school:

this is a different option for them and you see them grow and flourish and you can see their cogs turning and their head's going 'right, we could do some different here. I don't need to be in the classroom all the time. I need to be out here. I need to do something like this. I've got a different pathway. I don't need to be, I don't have to go to university and college'. We all say we have to go to university and college. 'I don't have to do that'

This broadening of potential horizons is evident in the following quote:

But you do see a massive change in students across the schools, not only secondary but in primary as well. Just that different outlook is massive. They're different. And also I think it's the social value of it regarding like 'cause our students are very, very, I don't know if you know the area we're in. We're very enclosed in terms of inner city with a high PP [Pupil premium] rate and there's not much going, I'll be honest. There's not much going. There may be a small little shops, that is it, a bunch, about a thousand council houses and not in the greatest area, I'm going to be honest there and the impact this has had on those students has been that there's more out there, there's more to go and see and more to go and do, so career aspects, things to take out of that as well for the feedback for them as well as what else is out there, I said, 'you can go and work for the YHA, you can come and do this, you can come and do this around all different sites' and they were they were, one kid said 'what, so you can work here?'

He described this impact on one memorable student:

So not only has it impacted in their school life outside but also looks at their kind of like their future within it as well. One student's looking forward to it, one student, I said one of his parents said he's gone crazy. Can't say his name but he has been great. So he rang home to his mum, his mum rang me and said 'what's happened'? I said 'what do you mean'? She goes, 'he wants to work for the YHA, he wants to work there' which is great and he would never thought of that. He would never thought it was an option to go and do that.



Figure 27: Young people out on a remote hike

P4 also described impact within the return to school phase:

we have students [post-trip] who have joined the environmental club at school. We've got a massive thing, one of the schools for example, we've gone no water bottles, they have to have a recycled one they bring into school. They've got rid of that kind of like plastic to help the environment. Some of the students are taking part again in gardens, in school gardens and allotments. And staff as well are trying to bring that into the curriculum sense of like science with STEM and so on, using this as a step in like 'you went to Generation Green, show me your knowledge of what happened? What did you see? How did you learn? And it's been really good.

This embedding of the knowledge and inspiration from the outdoor experiences highlights the longer-term effects of the residential trips on the students, staff and whole school culture.

Evidence of key developmental impact arising from the young people's qualitative data and the teacher interviews

The qualitative data reveals that short residential trips into nature had a powerful developmental impact on young people aged 9–17. Teachers from schools in low income and urban areas observed that these experiences fostered emotional growth, independence, and resilience in their students. The novelty of the natural environment, combined with the challenges of being away from home encouraged the young people to explore, reflect, and grow in ways that traditional classroom settings or curriculum driven learning often cannot provide.

Key developmental aspects identified include:

- **Emotional and Psychological Growth (Emotion regulation and Resilience):** Children built confidence and resilience by overcoming fears and stepping outside their comfort zones, often expressing pride in their achievements. There were

instances where children were able to regulate their own behaviour or emotion during their time away from home.

- **Cognitive and Experiential Learning:** Hands-on activities in nature stimulated curiosity and deepened understanding through real-world engagement. There were many examples of awe and wonder in the data.
- **Social Development (peer relationships, empathy):** The trips fostered empathy, inclusivity and new friendships, with students supporting one another and adopting new social roles. The dynamics were reported to switch at times in comparison to those typically observed in the classroom and this was enabling for some of the young people, and increased cohesion of the groups while away, and also upon return to their schools.
- **Teacher-Student Relationship Shifts (Attachment and Trust):** Students saw teachers in a more human and supportive light, which was reported to have increased trust and improved classroom dynamics post-trip.
- **Identity and Self-Concept (Autonomy and Self-Concept):** The freedom to explore and make choices helped students discover new aspects of themselves and develop a stronger sense of agency. These experiences appear to have been empowering for the young people.
- **Sensory and Environmental Awareness (Mindfulness):** Exposure to nature offered new experiences that were profound and life-changing, enhancing a deeper understanding of the young people's place in the natural world and fascination of it.

These findings suggest that residential nature trips can be transformational, offering children a rare opportunity to grow emotionally, socially, and cognitively in a supportive and enriching environment. The time in nature also supported wellbeing, with reports including examples of fun, happiness and positive flourishing () - these states can support developmental potential in young people (Barrable and Touloumakos, 2025; Chawala, 2021; Davis et al., 2021; Mann et al. 2022).

5. Recommendations

Continue to offer day trips and residential courses

Day trips and residential courses should be more widely available to young people from less affluent backgrounds to enable greater numbers of young people to benefit from these experiences.

Offer Day trips as a Stepping Stone

Day trips may act as a stepping stone, encouraging young people from deprived backgrounds and their families to be open to the idea of their young person attending a longer residential programme in the future. They offer a low-risk option that might facilitate a re-appraisal of some of the barriers that were described by teachers.

Expand provision of residential trips

The longer-term impact of the residential programmes suggest that these should be offered more widely, particularly to older young people given the potential for such experiences to light a spark – potentially providing inspiration for future careers in the outdoor environments.

Curriculum design

Activities should focus on the contact, beauty, emotion and compassion pathways to nature connectedness given how well represented these were in the young people's qualitative data. The meaning pathway might be more suitable for older age groups to explore.

Continue to give young people experiences with mixed groups to support their intrapersonal growth and include opportunities for reflection for their intrapersonal awareness and development.

Include less structured and more self-led activities as these were places where trust and autonomy were evident and appreciated by young people.

Offer follow-up curriculum ideas for scaffolding of the learning once back into school. Continued liaison with schools after the residential trips can build ongoing partnership working and offer more ideas for teachers to build upon the learning developed on trips.

Future research to consider any lasting impact of the trip

Gaining greater insight into the long-term impact of these experiences could be gained by contacting participants after 12 months and up to several years later to explore their thoughts about the impact these experiences had for them.

6. Conclusions

Overall, both the day trip and residential trips have had an overwhelmingly positive impact on the young people who attended.

Analysis of the short-term impact of day and residential trips comparing time point 1 and 2 are positive. Across both the single day trips and residential trips, increases are observed in all measures, with young people showing higher levels of nature connectedness; importance of looking after nature; wellbeing; night sky connectedness and inclusion of nature at night in self after their trip compared with the pre-trip baseline.

Although larger increases were seen in the young people attending the day trips when compared with the residential trips for nature connectedness; importance of looking after nature; wellbeing; night sky connectedness and inclusion of nature at night in self, the type of trip did not appear to have a substantial impact.

Analysis of the time 3 data further highlights the longer-term impact of the residential trips where the short-term increases seen for nature connectedness, wellbeing, night sky connectedness and inclusion of nature at night in self were maintained at the 12 week follow up. This demonstrates the importance of providing residential experience to young people, particularly those from less affluent backgrounds.

Increases in the importance of looking after nature were also maintained at follow up in the residential group although this did not reach significance, the interaction effect provides support for these positive changes for young people attending the residential trips.



Figure 28: Young People exploring the stepping stones at Dovedale

These positive findings are further supported by the qualitative data which demonstrated clear evidence of the importance of four key pathways in supporting nature connection for young people, namely through *contact* with nature through the senses, recognising and valuing *beauty* in nature, experiencing and *emotional* connection with nature and demonstrating a desire to care for nature through the *compassion* pathway.

The *meaning* pathway was less well represented, which may suggest that for young people from areas of social deprivation, the other pathways may have greater relevance to them.

Further inductive qualitative analysis identified four additional themes: i) Intra- and Inter-personal awareness, where the young people focussed on relationships with peers, staff and new friends, along with a heightened understanding of themselves and their capabilities. ii) Fascination through learning, which highlighted how the trips had introduced them to new knowledge with many indicating how exciting and inspiring this was for them. iii) The 'Part of nature': personal connection to nature, theme reflects the way that many young people expressed their own connection with nature with many reflecting how they felt they were a part of nature. iv) Post-trip behavioural and attitudinal changes reflected how many young people reported differences in their behaviours after the trip, with many engaging in further positive behaviours.

The teacher data provided additional insight and sets out the profound nature of both the day and residential trips for the young people. Four themes were developed. Theme 1 related to recognising the value of the GG2 trips and the barriers to participation. Through this theme the teachers highlighted their own increased awareness of the barriers faced by many young people and their families in accessing nature, and opportunities such as those provided by GG2, and recognised the need to demonstrate the value of such experiences to encourage participation. In the second theme, the importance of stretch, the teachers became more aware of how important it is for young people to have opportunities to be challenged and stretched, noting the growth that occurred as a result of

these experiences for the young people. The third theme related to novel experiences as the young people were repeatedly exposed to new activities and experiences and this really highlighted how different the GG2 experience was from their home lives. The fourth theme related to the change in relationships. The teachers noted how the young people changed during the trip and how relationships with peers, teachers and staff developed.

In summary, Generation Green 2 has had a profound impact for the many young people who participated. For those who attended the single day trips, short-term benefits were clearly apparent in their self-reported levels of nature connection, looking after nature, wellbeing, night sky connection, and inclusion of nature at night in self. Furthermore, for those attending the residential trips, not only did they also show these increases, but these were then maintained at the 12 week follow up, demonstrating the impact of residential trips for longer-term change.

The qualitative data highlights further the importance of four of the five pathways in supporting nature connection with young people from less affluent backgrounds and additionally demonstrates the wider positive impact of GG2 short trips.

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8. Appendix: Copy of the Questionnaire

Nights Under the Stars - Generation Green 2 Evaluation of short residential trips, camping trips and day trips.

Thank you for agreeing to take part in this research project. It will help us to understand more about your experience of the nature-based course, any impact it has had for you and how we might improve this for the future.

First you need a unique Code

So that we can match up your answers at the start of the nature-based course and again at the end of the course and a few weeks later, we would like you to use a unique code. This means that your answers remain confidential.

Your code will be made up of the **last 3 letters of your first name and your house or flat number**. For example, if your name is **Janet** Smith and you live at **32** Jack Street, your code will be **net32**

My code:

Last 3 letters of my first name _____ My house or flat number _____

Next, we would like to know a little more about you.

Age _____ years

Gender Male ☐ Female ☐ Prefer to self-define ☐ Prefer not to say ☐

What type of course are you doing?

Day Trip ☐ Farm Stay ☐ Residential Trip (Staying overnight) ☐ Camping Trip ☐

Who are you doing your course with?

☐ Field studies council	☐ YHA
☐ Girlguiding	☐ National Landscapes
☐ National Parks	☐ Scouts
☐ Outward bound trust	☐ Other _____
☐ Don't know	

How long is your course?

1 day ☐ 2 days ☐ 3 days ☐ 4 days ☐ 5 days ☐

In this section we would like to know how you feel about your relationship with nature.

The following questions are about you and nature. By nature, we mean all types of natural environment and all the plants and animals living in them. Nature can be close to where you live in towns, the countryside or wilderness areas further away.

Please tell us how much you agree or disagree with each of the following statements, where 1=completely disagree and 7=completely agree. Please circle the relevant number.

	Completely disagree				Completely agree		
I always find beauty in nature	1	2	3	4	5	6	7
I always treat nature with respect	1	2	3	4	5	6	7
Being in nature makes me very happy	1	2	3	4	5	6	7
Spending time in nature is very important to me	1	2	3	4	5	6	7
I find being in nature really amazing	1	2	3	4	5	6	7
I feel part of nature	1	2	3	4	5	6	7

How important is it to you to look after nature?

Not at all
important

Extremely
important

0 1 2 3 4 5 6 7 8 9 10

Questions about your feelings.

Think back about how you felt over the last 2 weeks.

Please respond to each item by marking 1 box per row regarding **how you felt in the last 2 weeks**

	All of the time	Most of the time	More than half the time	Less than half the time	Some of the time	At no time
I have felt cheerful and in good spirits						
I have felt calm and relaxed						
I have felt active and vigorous						
I woke up feeling fresh and rested						
My daily life has been filled with things that interest me						

Night Sky questions

The following questions are about you and your relationship/connection to the night sky. It does not matter how often or where you view it.

Please tell us how much you agree or disagree with each of the following statements by circling the number that represents how you feel.

0 Strongly disagree – 10 Strongly agree

	Strongly disagree										Strongly agree
I find beauty in the night sky	0	1	2	3	4	5	6	7	8	9	10
Spending time under the night sky is important to me	0	1	2	3	4	5	6	7	8	9	10
Being under the night sky is an amazing experience	0	1	2	3	4	5	6	7	8	9	10
Being under the night sky makes me happy	0	1	2	3	4	5	6	7	8	9	10

I feel part of the night sky and universe	0	1	2	3	4	5	6	7	8	9	10
--	---	---	---	---	---	---	---	---	---	---	----

Preserving dark night skies is important to me	0	1	2	3	4	5	6	7	8	9	10
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Thank you for taking the time to complete these questions, your help is much appreciated.

The following open questions will be asked at the end of the **follow up questionnaire only**

What, if anything, have you learned about yourself by being on this trip

Looking back, what was the one thing you will remember most?

What, if anything, has changed for you as a result of taking part in the trip?

Office use only:

Postcode of delivery location _____

Consent form shared and consent affirmed	Yes	No
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