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Navigating eco-anxiety and eco-detachment: educators' strategies for raising environmental awareness given student's disconnection from nature

Rachael C. Edwards^a , Brendon M. H. Larson^b  and Susan Clayton^c 

^aUCL Social Research Institute, Institute of Education, University College London, London, United Kingdom;

^bSchool of Environment, Resources and Sustainability, Faculty of Environment, University of Waterloo, Waterloo, Ontario, Canada; ^cDepartment of Psychology, The College of Wooster, Wooster, Ohio, USA

ABSTRACT

Awareness of environmental problems such as climate change can motivate action, but educators debate whether to raise students' awareness given that it may provoke eco-anxiety. We have even less understanding of how these relationships are affected by young people's growing disconnection from nature. Through 28 semi-structured interviews in Canada and the United Kingdom, we explore how educators perceive students' nature connection and eco-anxiety and how they introduce discussion of environmental problems. Educators frequently observed experiential, cognitive, and emotional indicators of nature disconnection and eco-anxiety, although many (39%) reported rarely, if ever, witnessing such environmentally related distress. Educators prioritised improving nature connection over raising awareness of environmental problems. When they discuss these issues with students, they emphasise hope and encourage pro-environmental behaviours to avoid eliciting eco-anxiety for those not currently experiencing it, a strategy that is partially inconsistent with literature suggesting some eco-anxiety can nurture pro-environmental behaviour. Our findings provide new insights into the challenges that educators face in helping their students navigate current environmental trends.

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1. Introduction

As the impacts of climate change intensify and biodiversity across the world continues to decline, young people are increasingly recounting a variety of negative emotions including grief (ecological grief) and anxiety (eco-anxiety) (Burke, Sanson, and Van Hoorn 2018; Clayton 2020; Comtesse et al. 2021; Usher, Durkin, and Bhullar 2019). Ecological grief is defined by Cunsolo and Ellis (2018, p. 275) as "the grief felt in relation to experienced or anticipated ecological losses, including the loss of species, ecosystems and meaningful landscapes due to acute or chronic environmental change". Eco-anxiety manifests in a wide variety of emotions, including fear, depression, resentment, and helplessness (Gifford and Gifford 2016). Young people are

CONTACT Rachael C. Edwards  rachael.edwards@ucl.ac.uk  UCL Social Research Institute, Institute of Education, University College London, Gower Street, London WC1E 6BT, United Kingdom.

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particularly vulnerable to eco-anxiety and grief (Klassen 2022; Sanson, Van Hoorn, and Burke 2019) and educators are increasingly concerned with how to appropriately address these emotional responses to environmental degradation (Baker, Clayton, and Bragg 2021; Ojala 2015, 2016).

Despite their negative effect on wellbeing, eco-anxiety and grief could also contribute to addressing ecological decline to the extent that they inspire pro-environmental behaviour (Comtesse et al. 2021; Galway et al. 2021; Mathers-Jones and Todd 2023; Ojala et al. 2021; Skilling et al. 2022). For example, through over 44,000 survey responses from 23 European countries, Bouman et al. (2020) found climate worry to be a motivating factor in support of climate policies and climate mitigation behaviours. However, the literature suggests that this link is predicated on the type of coping mechanism exhibited in response to eco-anxiety (Higginbotham, Connor, and Baker 2014). For example, Ojala and Bengtsson (2019) found that meaning and problem-focused coping strategies contributed to pro-environmental behaviour, whereas coping through de-emphasising the problems did not. As such, a growing body of literature contends that educators should avoid promoting naive and complacent optimism by raising awareness of environmental problems, while concurrently encouraging exploration of, and engagement with, societal changes that could bring about desired futures (Galway et al. 2021; Kelsey 2016; Ojala 2023; Park, Williams, and Zurba 2020; Pihkala 2020). In this way, educators can instil a sense of agency and avoid causing despair, denial, and disengagement. This balance is thought to foster “constructive hope” that is “based in an acknowledgement of the negative, a positive view of preferable futures, the possibility of societal change, and [...] concrete pathways toward this preferable future” (Ojala 2012, 2016, pp. 42-43).

Despite the growing body of literature on constructive hope, our understanding of if and when eco-anxiety could drive environmentalism is still evolving and, as Comtesse et al. (2021, p. 6) describe, “it remains unclear whether climate change-related psychological distress is an indispensable precondition for behavior engagement or change”. In particular, it is important to understand eco-anxiety and constructive hope within the context of young people’s increasing disconnection from nature, particularly in Western contexts (Imai, Nakashizuka, and Kohsaka 2018; Larson et al. 2019; Louv 2005; Soga and Gaston 2016; but see Novotný et al. 2020; Oh et al. 2020). Nature connection has been defined as “a stable state of consciousness comprising symbiotic cognitive, affective, and experiential dimensions that reflect a realization of the Interrelatedness between one’s self and the rest of nature” (Zylstra et al. 2014, p. 126). It is both an important contributor to wellbeing (Zelenski and Nisbet 2014) and has been empirically linked to pro-environmental behaviour (Clayton 2012; Frantz and Mayer 2014; Galway et al. 2021; Hughes, Richardson, and Lumber 2018).

At an individual level, Beery et al. (2023) discuss three manifestations of nature disconnect that are particularly relevant to this research: experiential, cognitive, and emotional. With regard to the experiential dimension, the erosion of nature connection is most often linked to generational declines in childhood-nature contact, which is referred to as the “extinction of experience” (Soga and Gaston 2016). For example, Soga and Gaston (2016) draw together empirical evidence from the USA, the UK, and Japan highlighting this trend. This experiential separation of young people and nature is linked to a wide variety of factors including increased digital media use and parental risk aversion (Edwards and Larson 2020; Larson et al. 2019; Pearlman Hougie 2010). In terms of cognition, young people have been found to be lacking ecological literacy, including knowledge of the relationship between human and environmental systems and processes (Hooykaas et al. 2019; Lee et al. 2020). Finally, a growing body of work has revealed highly negative emotional responses to nature among young people including fear and disgust (biophobia) (Soga et al. 2020; Zhang, Goodale, and Chen 2014). Although wariness and/or fear of nature in certain situations can be a valuable adaptive response (and indeed may indicate a strong level of ecological literacy and nature connection) (Olivos-Jara et al. 2020), biophobia can also manifest in excessive and irrational forms and lead to a strong aversion to nature, including that which is not dangerous or harmful (Soga et al. 2023). As

Beery et al. (2023) emphasize, these dimensions of nature disconnect are embedded within wider socio-culture factors and power relations such as widespread inequalities in access to nature (Edwards and Larson 2022).

Declining nature connection has implications for environmental educators seeking to foster constructive hope because the literature suggests that eco-anxiety and grief will be experienced particularly strongly by those who are “deeply connected to, and observant of, the natural world” (Clayton and Karazsia 2020; Cunsolo and Ellis 2018, p. 279). Indeed, in 1949, Aldo Leopold wrote, “one of the penalties of an ecological education is that one lives alone in a world of wounds” (p. 64). For example, in a survey of over 200 adults in the USA, Clayton and Karazsia (2020) found environmental identity (a measure of nature connection) to significantly positively correlate with anxiety about climate change. Theory on constructive hope suggests that those who have little knowledge of environmental problems are in particular need of exposure to such information given the potential role of worry in motivating behaviour change (Ojala 2016). Knowledge of environmental problems is also necessary to prepare young people for the significant ecological shifts they will likely experience over their lifetime (Larson, Fischer, and Clayton 2022). However, considering the relationship between nature connection and eco-anxiety, young people with little awareness of these problems are also likely to be the least connected to nature. What, therefore, are the implications of widespread nature disconnect for strategies endeavouring to promote constructive hope? Giusti et al. (2018, p. 14) developed a framework conceptualising childhood nature connection as a progression of abilities, finding that before children will be motivated to act for nature (a core dimension of constructive hope), they need to “at least feel at ease and comfortable in the natural elements of the outdoors”.

Nature connection has received little study in the context of constructive hope and coping responses to eco-anxiety. In this research, we take an initial step to addressing this gap through investigating how environmental educators broach the subject of environmental problems among students possessing varied degrees of nature connection and eco-anxiety. In this way, we seek to understand educator perspectives on how to navigate eco-anxiety and hope. As early role models, environmental educators have a key role to play in fostering nature connection and are also at the front lines of young people’s emotional responses to declining nature. At the same time, educators are likely to be experiencing a certain level of eco-anxiety themselves, adding an additional layer of complexity (Geiger et al. 2019; Park, Williams, and Zurba 2020). In an Australian study, for example, teachers reported that schools should teach children about sustainability, but that their own negative emotions in response to climate change made it challenging to communicate with the students (Baker, Clayton, and Bragg 2021). The literature highlights the need for educators to critically engage with their own emotions if they are to contribute to fostering productive coping mechanisms among learners (Pihkala 2020).

Through semi-structured interviews with environmental educators in Canada and the United Kingdom who regularly work with students possessing varied levels of prior experience in nature, this exploratory research was guided by three research questions:

- i. To what extent have the educators witnessed indicators of nature disconnection among students and how have they responded?
- ii. To what extent have the educators witnessed eco-anxiety among students and experienced these emotions themselves? How have they responded to these emotions personally and among their students?
- iii. What approaches do the educators use to build awareness of environmental problems?

These research questions allow us to contextualise the ways in which educators discuss environmental problems within the perceived prevalence of nature disconnect and eco-anxiety

among their students. We explore our results in the context of the literature on nature (dis)connection, eco-anxiety, and strategies for fostering constructive hope.

2. Materials and methods

We employed online, semi-structured interviews with environmental and outdoor educators in Canada and the UK. A qualitative method was selected given the exploratory nature of this work and our desire for in-depth examples from educator experiences. We selected Canada and the UK as the context for the research given i) their variety and quantity of environmental education organisations, ii) their longstanding historical traditions of environmental education, and iii) the authors' knowledge of the environmental education landscapes in these countries.

2.1. Recruitment and interview protocol

Through an internet search, we compiled an initial list of over seventy environmental and outdoor education organisations, networks, and bodies across Canada and the UK from which potential participants could be drawn. All organisations were contacted through email about their participation. For over two-thirds of these organisations, we identified a specific individual to contact who appeared most suitable based on their description on the organisation's website. Where we couldn't identify an individual, we contacted the general organisation email and asked for the study information to be passed on to a relevant member of staff. We also applied snowball sampling by asking participants to identify other educators who they felt could add insight to our study (Robinson 2014). We concluded recruitment when we reached a point of thematic saturation within our sample (Guest, Bunce, and Johnson 2006).

Interviews took place from August to December 2020 and were conducted over Zoom, taking an average of 38min (range: 20-53min). At the onset of each interview, participants were reminded that their responses would be anonymised, and we gained their informed consent. All interviews were audio recorded and manually transcribed. This research was approved by a University of Waterloo Research Ethics Committee (#31915). As interviews adopted a semi-structured format, the following description of the interview schedule should be viewed as broad topics we explored which were followed by more in-depth questions based on participant responses.

To gain an in-depth understanding of our sample and to contextualise responses, we asked participants to describe their past and current involvement in environmental and/or outdoor education, including the number of years they had been involved and the ages of young people they regularly taught. We then asked educators to describe the type of groups they worked with (e.g. school field trips, naturalist clubs), explaining that we wanted to identify the range of students they taught in relation to pre-existing interest and experience in nature. We also gathered demographic information from educators on age, gender identity, and ethnicity.

To gain insight relating to our first research question, educators were asked to describe any challenges they experienced related to their students' knowledge, behaviours, and reactions to nature and how they addressed these challenges. We probed for information relating to experiential, cognitive, and emotional challenges as indicators of nature disconnection (Beery et al. 2023). The extent to which educators perceive these indicators (e.g. ecological literacy, biophobia) could thus serve as a useful approximate measure of variation in nature (dis)connection among their students.

To explore the perceived prevalence of eco-anxiety, educators were asked to describe the extent to which they witnessed negative emotions in their students and/or other young people in their lives relating to environmental decline and how they addressed such emotions. We then asked them to describe any such negative emotions they themselves experienced and to discuss their coping mechanisms.

Finally, we asked educators to describe if they felt that discussion of environmental issues should be incorporated within environmental education and, if so, how they broached these subjects with their students. As part of this question, we provided examples of environmental problems including climate change, biodiversity decline, and habitat destruction.

2.2. Analysis

As this research was exploratory, we identified themes within our data using an inductive, open coding approach following Braun and Clarke (2006)'s guidelines for thematic analysis and using Dedoose analysis software (Version 8.3.43, 2021, Los Angeles, CA, www.dedoose.com). Through an initial review of the transcripts, the first author compiled a preliminary list of codes. The first author then completed multiple reviews of all transcripts to confirm, correct, and group codes into final themes relating to each of our research questions. This emerging coding framework was discussed at regular intervals with the other authors throughout the analysis process to ensure all authors agreed on the codes and coding combinations. We used a semantic approach to identify themes; we did not attempt to interpret the data beyond what the participants had said (Braun and Clarke 2006). Below, we report thick descriptions of our findings including illustrative quotes and narrative detail of the variation among participant responses within each theme.

3. Results

3.1. Overview of participants

We spoke with twenty-eight environmental educators from a wide range of sectors including environmental organizations offering nature-based programming (e.g. nature centers), forest schools, environmental education advisory and funding networks, and formal educational settings (e.g. primary school teachers). Sixteen educators (57%) were based in Canadian organizations, eleven in UK organizations (39%), and one worked for an organization with a North American extent. Crucially, all educators had been involved with instructing diverse cohorts of young people likely to possess varied levels of both interest in nature and prior nature-based experience (e.g. school groups). Fifty percent of educators had experience working for sustained periods of time with groups of young people possessing varied levels of nature-based experience (e.g. a teacher in formal education, coordinator of environmental education charity conducting month[s]-long classroom projects). The remaining educators' (50%) experience of working with such diverse cohorts was primarily through one-off events and projects (e.g. hosting a school group at an environmental education center, delivering one or a few days of environmental programming for a classroom). Several educators reflected on how their organizations specifically targeted young people from urban environments and/or disadvantaged backgrounds who tend to have less opportunity to interact with natural environments. Many educators also worked with more homogenous groups of environmentally engaged young people (e.g. through naturalist clubs). Of the 26 educators currently working for an environmental education/outdoor learning organization, the majority (62%) worked in both urban and rural settings (e.g. delivered programs to classrooms in both environments), while 15% and 23% operated in predominantly urban and rural environments respectively.

Most educators were, or had been, involved in more than one sector over the course of their career and twenty-two (79%) held senior positions within their organization and were involved with program development (e.g. CEO, Founder, Program Manager, Director) (Table 1). Most educators had at least eleven years of experience in environmental education or outdoor learning (68%). Just over a quarter (29%) of educators primarily worked with young people aged 12 and under (children), a smaller number (11%) primarily worked with teenagers

Table 1. Overview of participant experience in environmental education and demographics (N = 28).

Seniority in the field		Gender	
Held a senior organizational position	79%	Female	71%
Never held a senior organizational post	21%	Male	25%
		Non-binary	4%
Years of experience		Age	
10 or fewer	32%	Under 30	7%
11 to 20	36%	30 to 50	64%
Over 20	32%	Over 50	25%
		Did not disclose	4%
Ages taught		Ethnicity	
All ages	60%	White	89%
12 and under	29%	Minority ethnic	11%
13-18	11%		

(adolescents), while the remainder regularly taught children from both age groups. In the following sections, we have specified if a finding relates to a particular age group (either children or adolescents) and, if not, have used the term “students” to inclusively refer to both age cohorts.

Educators were predominantly female (71%), between thirty and fifty years of age (64%), and white (89%), with the three remaining educators identifying with Latino, British Indian, and Black Caribbean ethnic backgrounds.

3.2. Indicators of nature disconnection among students

Educators described routinely perceiving experiential, cognitive, and emotional indicators of nature disconnection in their students. First, they regularly taught students who exhibited minimal prior experience in natural environments. Several educators identified specific, extreme examples, such as one educator who said, “*I had a kid out a couple of summers ago who had never seen the sunset*” or another who indicated, “*they’ve never observed the changing colours of the leaves on a tree*”. Relating to this lack of experience, educators witnessed students being disinterested in nature and lacking patience for outdoor exploration (18%) and discussed how they often perceived students to lack the physical skills and knowledge necessary to navigate outdoor environments (e.g. unsteadiness on unpaved, natural surfaces, inability to climb a tree) (18%). Several also spoke about witnessing an extreme lack of knowledge relating to the natural environment, anthropogenic environmental impacts, and the effect these impacts would have on humanity (29%). To illustrate this lack of ecological literacy, an educator recounted a child’s response to having the lowest ecological footprint in the class: “*Yay, I’m the winner of our class! I only take two and a half worlds [...]. Everybody else uses seven worlds*”. Rather than demonstrating shock or concern that most learners were using seven worlds, the student’s focus was on the fact that they “won” the exercise. Another educator described how, “*I also find that there’s a disconnect between the actions that they take that may have been causing some of the damage in the environment. I don’t think it’s always seen*”.

Relating to the emotional dimension of nature disconnect, three-quarters of the educators discussed regularly witnessing biophobia among their students. Educators discussed how students often demonstrated an excessive and irrational level of fear over elements of the outdoors which did not present any danger including insects, frogs, birds, and trees. For example, one educator described how “*you have kids who were terrified of every single little insect they come across*”. Another indicated that “*you hear people just expressing fear of going into the forest in the middle of the day*”. Educators felt that these responses resulted from their students’ lack of experience in nature and lack of knowledge relating to the level of danger (or lack thereof) certain species and habitats presented. For example, an educator described these connections

in saying, *"if you are a child that's never really spent any time outdoors, which we're dealing with more and more [...], they generally don't know if there's anything dangerous inside the forest and what kind of animals they might meet [...]. They're coming into the experience with a lower level of understanding"*.

Connecting students to nature was widely identified as a priority and most educators did not describe the exhibited levels of nature disconnect as a serious obstacle. On the contrary, educators recounted a variety of creative strategies for how they overcame these challenges which centred on fostering a sense of comfort. Half of the educators described engaging students who were expressing biophobia in conversation to gain a more in-depth understanding of these emotional responses. An educator described this strategy in saying, *"I think a really important part about the field is that we have to talk about the fears and uncertainties we have because there are ways to change our fears and our perceptions of the land and the wild"*. Educators explained how having these discussions and identifying the specific aspect(s) of the natural environment that were causing concern allowed them to tailor their interactions with the student accordingly. Many educators (43%) discussed the need to introduce students to nature at their own pace and scaffold learning based on initial comfort levels. As one educator explained, *"There's a lot of research in environmental education that suggests that finding those edges is where you want to take students, bringing them to their comfort zone and just seeing where they're at"*. Finally, four educators (14%) discussed how fostering a sense of understanding about specific animals of concern, in particular insects, and their place in the ecosystem, can ease anxieties.

Educators also described how the novelty of being outside presented an opportunity to captivate and excite students with less outdoor experience. This sense of novelty was described well by a respondent who said, *"I think where the forest school really works its magic is that often [when] children get there at the beginning, they have this fizzy sort of excitement"*. Finally, educators provided examples of how overcoming outdoor challenges (e.g. climbing a tree, completing a portage) can provide students with a great sense of accomplishment and foster a continued desire to engage with nature. One educator expressed how, *"for me, it's quite important to make sure that kids feel safe, but also to challenge them a bit. And afterwards, the response can be quite astonishing in terms of confidence"*. This opportunity was expressed by all those educators who worked predominantly with adolescents.

3.3. Eco-anxiety: prevalence and response among students and educators

Thirty-nine percent of the educators indicated that they rarely or never witnessed negative emotions relating to environmental problems among young people (students and/or other young people in their lives). For example, an educator indicated that, *"so far, I've not seen myself the kind of deep emotional impact that you would associate with this"*. Another indicated that they felt *"people who are having any kind of anxiety about the future are actually few and far between"*. Although a few of these educators described an instance in which they witnessed momentary concern, such as if a student was exposed to distressing information about the effects of plastic pollution, none of these educators described such emotions as lasting.

Fifty-seven percent of educators, however, described having witnessed chronic negative emotions among young people, with anxiety and worry being most commonly identified. Indicators of eco-anxiety were prevalent across age groups through to adolescence. For example, an educator indicated that *"there are definitely several folks that I work with on a regular basis that have general anxiety about things related to wildlife harm or just humans being really tricky to change"*. Another emotion identified by several educators was frustration, targeted at those who the students perceived as contributing to the problem. Several educators reported how, alongside these emotions, students often raised the question of how they could help. Some educators described how, from their experience, the students expressing such eco-anxiety were already quite engaged in environmental issues. For example, an educator described how they

had “held a consultation with older children [...] between 15 and 16 who really communicated about how concerned they were about the environment to the point where it caused them anxiety issues and really fed into the Greta Thunberg narrative”. Others described how the emotions were triggered by information in the media (e.g. environmental documentaries) or from discussions with parents. One educator did not discuss whether they witnessed eco-anxiety.

Several educators described how they would address eco-anxiety experienced by students through conversations about positive actions and solutions (see Section 3.4). However, educators also spoke about the need to leave room for discussion and validate and empathise with any emotional responses that arise. One educator described this in saying, “When we run our climate change events, I often do an activity where I ask quite early on how people are feeling about it. And you get some very depressing answers. And I always just stand witness to those and say, well, we’re going to try and do something to channel it”. When working with groups of highly engaged students, another educator described how discussions around climate issues were important because, “in spite of the danger of worrying them, I think they’re already worried”. The strategies educators employed in response to eco-anxiety strongly relate to their methods for raising discussions of environmental problems in that they aimed to instil a sense of hope and agency, while avoiding the trivialisation of expressed concerns.

Educators widely discussed how they personally experienced negative emotions relating to environmental issues including low levels of anxiety, grief, and anger (82%). However, most educators did not frame these expressions of eco-anxiety as chronically debilitating. Alongside experiencing this range of emotions, over half of the educators emphasised the personal importance of staying hopeful (54%), with many explicitly identifying as optimists: “I am in my nature an optimist, so I kind of try to look for the positive and try to look for the hope”. These educators felt that dwelling on the negatives was neither healthy nor productive: “If I think about it too much, I find it so overwhelmingly depressing that I wouldn’t get anything done”.

Educators employed a variety of strategies to cope with their own eco-anxiety. One common technique was to centre their mental energy on their careers as educators (46%). Similarly, educators spoke about channelling negative emotions into pro-environmental action (43%), which aligns with the mechanisms they employed when responding to eco-anxiety in young people. A wide variety of behaviours were described in this regard, from growing one’s own produce, to purchasing an electric vehicle, to undertaking eco-challenges. Several educators spoke about focusing on positive stories of change as a coping mechanism, such as the climate strikes and examples of environmental restoration, to balance the ‘doom and gloom’ rhetoric they often encountered (29%). Some participants also described how they sought to be role models for their friends and family by encouraging and demonstrating sustainable behaviours (21%). Finally, several educators described consciously employing mindfulness techniques (18%). Avoidance of challenging topics was not identified as a prominent theme.

3.4. Introducing environmental problems: navigating eco-anxiety and hope

Although educators widely agreed that environmental education should integrate discussions of environmental problems, they also felt that such dialog should be balanced with discussions of the actions that can be taken to address these issues to instil students with a sense of agency (86%) (Table 2). An educator indicated that, “it’s about getting the balance between the bad news, the sad news, but also the good news, because we can all partake in trying to protect and change our lifestyles”. While educators did not wish to deemphasise the problem, they identified the importance of fostering a sense of hope through discussion of the solutions. For example, an educator expressed how, “I think it’s important to understand that we’ve got a collective and shared responsibility to do something about it, to work with others, and to maintain the hope that something can be changed [and] to direct it into collective action”. Educators highlighted

Table 2. Themes and illustrative quotes from environmental educators (N=28) on the topic of raising students' awareness of environmental problems.

Theme and frequency	Illustrative quotes
Balancing awareness with agency n=24	<i>The element of balance, I think, is key. It's a bit like passing off the negatives. Yes, there are some really bad [indicators] and there are some issues, serious issues we do need to tackle. But we are moving in the right direction. And if we all do play a part and we stop demonizing those on the opposite side of the arguments, from both sides, then we can achieve more together.</i> <i>I think that it's important that we give them hope that we can make it different. They will have faith that it will happen. But we have to take some sort of action.</i>
Specific environmental actions promoted by educators (N=18) Avoid scaring young people into inaction n=14	Civic engagement (n=8), simple behaviour changes (n=8), environmental careers (n=5), problem solving assignments (n=5). <i>That's why we're seeing these levels of climate anxiety and depression because it feels hopeless. [...] I think it's important that they know [about the challenges] not only in the doom and gloom way, but in a 'this is the trajectory we're on, but we can change it'.</i> <i>I think we need to really make sure that we understand the research behind how that communication is delivered, because if you deliver doom and gloom, if you deliver vastness, if you deliver being in despair and there's no hope, the normal kid is going to be like, 'what can I do? So why should I worry about it?'</i>
Prerequisite to instil a connection to nature n=10	<i>The problem I have with mainstream environmental education, let's say climate change rhetoric, is it's just doom and gloom. You're just telling people, 'this is really bad, this is awful'. And you're telling a child who is powerless at that point. [...] And it's not that we shouldn't do that, but if you're doing that without building resilience and connection to nature, I don't think you're going to be doing anything. You're just scaring people.</i> <i>It's a lot easier to care about something if you know a little bit about it.</i>
Introduce topics at a more mature age n=5	<i>Laying out all the doom and gloom scenarios without a solution-oriented angle, I don't think is super valuable, especially for really young kids. But I think there's all kinds of brilliant activities and games you can do to demonstrate imbalances, to demonstrate challenges, but also opportunities. So, I think it's really important to always pair those two things.</i> <i>I've recently been reading that when we're talking about up to six years old, introducing these really negative and quite scary topics is not serving the children well.</i>

the need to focus on action students themselves could undertake. These responses strongly aligned with how educators often identified as optimists and with the coping strategies they used in their own lives, as described above.

To foster a sense of agency, eighteen educators discussed specific environmental actions they had promoted among learners. Eight of these educators described how they endorsed civic engagement including writing to politicians, participating in climate strikes, and joining local organisations. Eight educators also identified simple behaviour changes students could make such as recycling, avoiding littering, and minimising water use. Five educators described how they made students aware of environmental career pathways, and another five discussed how they engaged adolescents in problem solving assignments following discussions of environmental problems. These results align with the most common techniques educators employed to address their own eco-anxiety: centring their mental energy on their careers and channelling negative emotions into action.

Several educators spoke about how fostering a sense of hope and agency among students was necessary to avoid scaring them into inaction (46%). An educator illustrated this challenge in saying, "I don't want to terrify these kids. I don't want to cause anxiety. But I also want to make sure that this is real, and they know that. So, yeah, it's a fine line". Another described how, "it is necessary to present all that information, to keep on reminding people that the world is going down. We must at the same time give people the tools for engaging with it so that they feel that they can make a

difference. If they don't feel they can make a difference, then they will switch off. Although educators described the importance of providing space for students to express uncomfortable emotions, most identified a desire to avoid causing anxiety or fear. Presenting the solutions alongside the issues was identified as a strategy for reducing the potential for these negative emotions.

In the context of raising awareness of environmental problems, a third of the educators emphasised the need to connect students to nature to foster care for and an investment in the natural world (36%). For example, an educator highlighted how, *"when we build and foster that connection to nature, then I think it creates that love of nature, which then creates 'I care about nature' and, therefore, 'I want to care about the environment', without ramming all the problems of the world down their little throats and saying, 'you have to fix this'. [...] I think it really comes from time spent in those natural environments"*. Another educator described the necessity of instilling nature connection in saying, *"Psychologically, it's about making [young people] want to save the world. It's like, well, what are worms? Why should I be bothered about worms? I don't even like them. Helping them realize what worms contribute and what part they play"*.

A few educators felt that discussions of environmental issues should not take place until young people reached a more mature stage of development (18%). For example, one educator described how, *"I think that's a very dangerous thing to introduce too early without weighing the mental health consequences"*. However, most educators felt that these topics could be introduced in age-appropriate ways for all students. A few educators provided some detail on how such conversations could be age adapted, indicating that they wanted to ensure students could understand the concepts being raised and that they were of an age where they could take relevant action and feel empowered. For children, these educators provided examples such as plastic pollution and littering that these young people could comprehend and take action to address. They felt that adolescents were at the stage where they could be introduced to more complex issues such as climate change and could also engage in relevant actions including activism and thinking about environmentally focused careers.

4. Discussion

4.1. Links between nature connection and eco-anxiety

Environmental educators in this research frequently encountered students exhibiting minimal experience in natural environments, a lack of environmental awareness, and biophobia, suggesting that these educators regularly work with students possessing an initially weak nature connectedness. In response, educators employed a variety of creative strategies to instil nature connection which revolved around fostering a sense of security, excitement, and achievement. These methods align with the first steps of Giusti et al. (2018)'s progression of nature connection abilities.

Considering the frequently encountered indicators of nature disconnect, it was somewhat unsurprising that almost forty percent of educators rarely or never perceived indicators of eco-anxiety among their students and other young people in their lives. The literature suggests that an attachment to the natural environment moderates emotional responses to environmental degradation (Helm et al. 2018), with eco-anxiety higher in those possessing stronger nature connectedness. This relationship implies that as educators strengthen student's nature connection, these youth are likely to experience heightened eco-anxiety and grief when exposed to information about environmental problems (Larson, Fischer, and Clayton 2022).

In response to the reported increase in eco-anxiety among young people, a growing body of literature has emerged which offers guidance on supporting and responding to these emotions (e.g. Baudon and Jachens 2021; Chawla 2020; Clayton et al. 2017; Climate Psychology Alliance 2022). However, there has been less attention on strategies for exposing young people who are not currently experiencing eco-anxiety to the realities of current environmental

problems and navigating the resulting emotions. This is an important point given that many people claim they are not emotionally affected by anthropogenic environmental changes. For example, 39% of American adults in a 2022 survey did not list climate change as a significant source of stress (American Psychological Association 2022). If not concerned themselves, it seems unlikely that these adults will present environmental issues to their children with a strong sense of urgency. Similarly, if such young people begin to experience eco-anxiety or grief, they might not receive sufficient support at home. This potential lack of parental support is problematic as the communication patterns of parents in relation to climate change have been found to correlate with the coping responses young people exhibit in response to climate anxiety (Ojala and Bengtsson 2019). As such, the role of environmental educators as role models is particularly critical for this population. In particular, further research is needed on strategies for raising awareness of environmental problems among young people from disadvantaged urban communities whose access to nature is often severely limited (Boyd et al. 2018).

In cases when they had witnessed eco-anxiety, educators described validating and empathising with the young person's concerns and engaging them in discussion about positive actions. These objectives echoed their own ways, as adults, of coping with eco-anxiety and align with Ojala (2015) and others (e.g. Pihkala 2020) who emphasise the critical importance of fostering emotional awareness in climate change education and the need for teachers to respect learners' emotions and offer support.

4.2. Fostering constructive hope: implications of nature disconnect among young people

Our findings indicate that while educators widely believed that discussions of environmental problems should be integrated within environmental education, they promoted a largely optimistic view of the future by highlighting steps towards solutions. They aimed to instil a sense of agency in students by providing opportunities for them to become involved with environmental action in age-appropriate ways. This approach aligns with literature indicating that environmental education which focuses on the facts alone, without providing opportunities for meaningful engagement in action, can lead to overwhelming and disempowering anxiety (Haltinner and Sarathchandra 2018; Jones and Davison 2021). As such, the literature widely advocates an action-oriented education approach which fosters constructive engagement with environmental issues alongside knowledge of these facts (Chawla 2020; Littrell et al. 2020; Trott 2022).

While educators promoted engagement with environmental issues, other aspects of their responses were somewhat incongruent with the literature on constructive hope. Educators empathised, promoted emotional awareness, and avoided trivialising eco-anxiety when it was expressed to them, but largely sought to avoid causing such distress among young people not currently experiencing these emotions. Proponents of constructive hope contend that acknowledging the realities of current environmental crises should accompany explorations of potential solutions and, as such, anxiety and grief are appropriate emotional responses (Galway et al. 2021; Head 2016; Ojala 2016). As expressed by Ojala (2017, p. 1035), "hope and negative emotions such as grief are not each other's opposites but intertwined and inseparable". While certainly not encouraging their students to suppress uncomfortable emotions (indeed, educators actively engaged with eco-anxiety), educators in this study did not appear to agree that eliciting negative emotional responses was necessary. A primary reason why educators were hesitant to emphasise environmental issues within their practice was their worry that such framing could incite paralysing fear and inaction. In addition, several educators expressed how they felt that an initial investment in nature must first be established. They thus prioritised fostering nature connection over raising awareness of environmental issues.

How do these perspectives relate to theory on the coping response pathways linking eco-anxiety to pro-environmental behaviour? As previously discussed, empirical evidence suggests

that disengagement from environmental issues can occur if young people cope with their anxiety by avoiding and deemphasising these problems rather than engaging in meaning- or problem-focused coping (Ojala and Bengtsson 2019). But what factors influence the type of coping strategy employed in response to eco-anxiety? It is worth considering whether, while young people are still in the early stages of strengthening their nature connection, a lack of emotional attachment could lead to maladaptive coping responses such as deemphasising environmental problems.

A wide body of literature has identified a relationship between nature connection and pro-environmental behaviour (Mackay and Schmitt 2019). This relationship implies that levels of nature connectedness should be considered in strategies seeking to foster constructive hope which involves substantial behaviour change, particularly considering the widespread nature disconnect in Western countries. Unfortunately, the potential relationship between nature connection and the coping strategies exhibited in response to eco-anxiety has received little study. We can draw some insight, however, from research examining the influence of different forms of environmental concern (biospheric, social-altruistic, and egoistic) on engagement in problem focused coping (referred to as “ecological coping”) and pro-environmental behaviours (Helm et al. 2018). Through surveys with adults in the USA, this research found that biospheric concerns (“e.g. concern for plants and animals; nature”), and to a lesser extent social-altruistic concerns (“e.g. concern for others; future generations”), were positively associated with problem focused coping. This relationship was not identified in those with predominantly egoistic concerns. Additionally, biospheric and altruistic concerns were indirectly positively associated with pro-environmental behaviours, mediated through engagement with problem-focused coping. These results suggest that pre-existing concern for the natural environment will affect coping strategies employed in response to awareness of environmental problems and, subsequently, engagement with environmentalism. Although biospheric concern is distinct from nature connection, these concepts overlap, providing an indication that this relationship could also be present in the context of the nature connection and highlighting the need for further study.

4.3. Conclusion

This research explored strategies for raising awareness of environmental problems employed by educators working with a wide range of students, many of whom display indications of weak nature connection and minimal signs of eco-anxiety. It showed that educators who are highly motivated to engage their students with environmental issues perceive practical as well as emotional challenges in connecting young people to nature and raising awareness of environmental issues, challenges that may involve their own emotional responses as well as those of their students. Pathways from awareness and nature connectedness to pro-environmental behaviour are complex, moderated by a range of factors including coping mechanisms. Other mediators such as capability and opportunity to engage in pro-environmental behaviours (themselves related to a variety of demographic factors including socio-economic status) further complicate this pathway (Aral and López-Sintas 2022). Demographic factors can also influence one’s opportunity to experience nature (e.g. green spaces are often lacking in culturally inclusive activities [Edwards, Larson, and Burdsey 2022]). It is therefore imperative that strategies to improve nature connectedness are designed equitably and in line with the lived experiences and worldviews of disadvantaged groups. Relatedly, nature connection has been conceptualised using a wide variety of scales and frameworks (many of which are rooted within an Anglo-normative perspective), and its relationship to pro-environmental behaviour is likely to be, in part, a function of this framing (Beery and Wolf-Watz 2014).

Educators in this research felt that exposure to environmental issues should be integrated within environmental education. However, they focused on the solutions over the problems to

foster hope and avoid provoking anxiety among learners not currently experiencing these emotions. They also prioritised connecting students to nature to foster an investment in the natural world. These strategies are partially incongruent with the literature on constructive hope which highlights the potential role that negative emotions can play in efforts to foster an environmentally engaged citizenry. Such research, however, largely does not consider how levels of nature (dis)connection might mediate young people's coping response to eco-anxiety and subsequent uptake of pro-environmental behaviours. Other factors (e.g. attention bias variability), however, have been found to moderate this relationship (Mathers-Jones and Todd 2023) and further research is needed to continue elucidating the pathways between eco-anxiety and pro-environmental behaviour, including the potential influence of nature (dis)connection (Chawla 2020; Galway et al. 2021). Existing study designs exploring coping responses to eco-anxiety could be modified to test for such mediating effects.

This research was not without its limitations. First, our sample was restricted to an educational setting in two countries with similar cultures and does not explore how nature connection and responses to environmental degradation might enter the educational system in other countries, including ones experiencing more direct impacts from climate change. Second, our participants were predominantly white and female. This area of research could, therefore, benefit from studies conducted in a wider range of geographic settings and diverse educational contexts (Gupta et al. 2019). Second, educators suggested that learners might not have expressed eco-anxiety in their presence given that, in many cases, they were not the students' regular teachers. Although this is likely to be true in some instances, most educators who were involved in the regular schooling of diverse learners did not perceive eco-anxiety to be widespread. Furthermore, we asked the educators this question not just in relation to their own students, but to any young people in their lives. We also relied on qualitative perceptions to identify indicators of nature disconnection, differing from the large body of literature assessing nature connection through quantitative scales (Cartwright and Mitten 2018). However, this paper focused on exploring nature disconnection, which has received far less attention than the concept of nature connection and, as such, we drew on Beery et al. (2023)'s formative work in this field. Finally, some of our cited examples in this paper refer to research with adults rather than young people.

If environmental educators are to best support young people who are beginning to strengthen their nature connection and expose them to potentially anxiety provoking information, more research is needed to understand variation in emotional responses to such educational strategies. Nature connection and eco-anxiety are linked, and those with a strong pre-existing connection to the natural world are likely to have some existing sources of support such as role models who helped them form this initial connection (Chawla 2007). Raising awareness of environmental problems and solutions is a common goal within environmental education. However, through connecting young people to nature, educators are also heightening the susceptibility of their students to eco-anxiety in response to this information given the identified relationship between nature connection and these negative emotions. This presents an emotionally challenging task for both educators and students alike. As such, educational organisations should ensure that those undertaking this responsibility are given sufficient training, such as on blending socio-emotional developmental approaches within climate change education (e.g. Carter 2016) and on how to provide mental health support for their students and access it themselves.

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Notes on contributors

Rachael C. Edwards is a Senior Research Fellow in the Institute of Education at University College London. Her research lies at the intersection of sustainability and public health. She is interested in how evidence linking nature interaction to wellbeing can be harnessed in policy and practice to reduce health inequalities. She also explores mechanisms of bridging the research-implementation gap and promoting evidence use in public health settings. Rachael attained a PhD in Planning from the University of Waterloo, Canada (2021), where she focused on evaluating and improving equity of access to nature for underrepresented communities.

Brendon M. H. Larson is a Professor in the School of Environment, Resources and Sustainability in the Faculty of Environment at the University of Waterloo. His research concerns the social dimensions of biodiversity conservation, for example regarding how people perceive and evaluate conservation options in the current era of dramatic global change. He has published over 70 refereed journal articles and book chapters, as well as the book *Metaphors for Environmental Sustainability: Redefining Our Relationship with Nature* (Yale University Press, 2011). He has served as President of Ontario Nature and on the editorial board of the journal *Diversity and Distributions*, and he is currently the Domain Editor for 'Climate, Ecology and Conservation' for *WIREs Climate Change*.

Susan Clayton is the Whitmore-Williams Professor of Psychology at the College of Wooster in Ohio. Dr. Clayton's research examines people's relationship with the natural environment, how it is socially constructed, and how a healthy relationship with nature can be promoted. She developed the Environmental Identity Scale to assess individual differences in perceived interdependence with nature. She has written about the effects of climate change on mental health and has developed a scale to assess climate anxiety. She is author or editor of six books, including *Identity and the Natural Environment*, *Conservation Psychology*, and *Psychology and Climate Change*, and is currently the editor of the Cambridge Elements series in Applied Social Psychology. She was a lead author on the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

ORCID

Rachael C. Edwards  <http://orcid.org/0000-0003-4717-7615>

Brendon M. H. Larson  <http://orcid.org/0000-0001-5623-3864>

Susan Clayton  <http://orcid.org/0000-0002-2343-6865>

Data availability statement

Due to the qualitative nature of this research, participants of this study did not agree for their data to be shared publicly, so supporting data is not available.

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