"Hope dies, action begins?" The role of hope for proactive sustainability engagement among university students

Mathilde Vandaele

Institute of Geography and Sustainability, Lausanne University, Lausanne, Switzerland, and

Sanna Stålhammar

Department of Landscape Architecture, Planning and Management, Swedish University of Agricultural Sciences, Alnarp, Sweden

Abstract

Purpose – Education in sustainability science is largely ignorant of the implications of the environmental crisis on inner dimensions, including mindsets, beliefs, values and worldviews. Increased awareness of the acuteness and severity of the environmental and climate crisis has caused a contemporary spread of hopelessness among younger generations. This calls for a better understanding of potential generative forces of hope in the face of climate change. This paper aims to uncover strategies for fostering constructive hope among students.

Design/methodology/approach – This study examines, through qualitative interviews, the characteristics of constructive hope amongst proactive students enrolled in university programs related to global environmental challenges. Constructive hope describes a form of hope leading to sustained emotional stability and proactive engagement through both individual and collective actions.

Findings – The findings are presented according to four characteristics of constructive hope: goal, pathway thinking, agency thinking and emotional reinforcement. This shows how students perceive the importance of: collaboratively constructing and empowering locally grounded objectives; reinforcing trust in the collective potential and external actors; raising students' perceived self-efficacy through practical applications; teaching different coping strategies related to the emotional consequences of education on students' well-being.

Originality/value – We outline practical recommendations for educational environments to encourage and develop constructive hope at multiple levels of university education, including structures, programs, courses and among students' interactions. We call for practitioners to connect theoretical learning and curriculum content with practice, provide space for emotional expressions,

release the pressure from climate anxiety, and to foster a stronger sense of community among students.

1. Introduction

1.1 Education in times of despair

Anxiety is raising as messages of how anthropogenic environmental impact often is paired with no implementable solution in the individual sphere (Pihkala, 2020; IPCC, 2018). Dystopian climate change future scenarios are connected with the rise of negative emotions (Nolen-Hoeksema, 2000), such as anger, a sense of guilt and hopelessness. Young adults are on average less fatalistic about mitigating climate change, but they lack perceived self-efficacy with regards to their personal engagement (Corner *et al.*, 2015). They have a propensity for negative emotions in relation to global environmental problems, and especially to hopelessness in relation to climate change (Persson *et al.*, 2011; Threadgold, 2012; Ojala, 2015). These emotions do not systematically translate into positive collective actions (Ellis, 2004), and youth tend to frame action in the context of climate change and socioenvironmental challenges in terms of an individual rather than collective process (Kenis and Mathijs, 2012; Tayne *et al.*, 2021). The substantial rise of youth engagement in environmental movements, such as Fridays for Future (Wallis and Loy, 2021) and Extinction Rebellion (Furlong and Vignoles, 2020), demonstrates a shift in this trend. The idea of hope as a motivator has however been subject to criticism among environmental activists, like Greta Thunberg [1] and Extinction Rebellion given their motto: "Hope dies, action begins". While this refers to hope as a source of inaction or a type of blind optimism, there is a need for a more nuanced way to understand to what extent hope relates to action.

Among the group of young adults, a subcluster of university students are particularly vulnerable to develop a lack of hope, due to their regular exposure to sensitive information about the global state of the world and its future (Wamsler, 2020). The relationships between education for sustainability, hope and a propensity for proactive engagement among youth is still understudied (Selby and Kagawa, 2015). Education about global issues can increase student's negative emotions (Taber and Taylor, 2009), and students enrolled in programs related to climate change and other global environmental problems demonstrate a high level of worry (Ojala, 2007a). Given the critical role of students in university programs for sustainable developments as change agents and leaders in policymaking, research, communication, education and activism (Neubauer and Calame, 2017), it is essential to explore factors that foster their proactive engagement. This includes factors that ensure long-term ability to create alternative visions of the future, to cooperate to enforce sustainability at multiple levels of society (Otto *et al.*, 2020) and to teach the implementation of transformative theory in practice (Leichenko *et al.*, 2021). This study contributes to the understanding of how hope can be fostered in education for sustainable development. While most studies about constructive hope in education focus on children or teenagers in primary and high school education (Kerret *et al.*, 2020; Ojala, 2017), this paper targets university students enrolled in programs related to global environmental problems and explores how hope could lead them to proactive environmental engagement.

To encourage students to undertake transformative action for sustainability is one of the main aims and preoccupations of Education for Sustainable Development (ESD) (Barth *et al.*, 2016; UNESCO, 2019). The Agenda 2030 goals in higher education require major changes not only in campus operations and practices but also in teaching models (Leal Filho *et al.*, 2019). Higher education institutions have a crucial role to play in sustainable development, through knowledge creation and dissemination, spread from local applications to regional and global spheres and the promotion of lifelong interdisciplinary learning processes with critical and systemic thinking (Berchin *et al.*, 2021). The implementation of ESD requires paying attention to each student's individual processes, including the different stages of knowledge acquisition, critical analysis, personal and collective commitment, proactivity and how cognitive and socioemotional learning develops certain tipping points for transformative action (Griebeler *et al.*, 2021; Lambrechts *et al.*, 2013). Research into ESD points to the need for also considering the inner dimensions to understand how students become agents for change in a learning community, i.e. mindsets, beliefs, values, worldviews and paradigms (Ives *et al.*, 2020; Wamsler, 2019; Walsh *et al.*, 2020).

1.2 What is hope?

There is no consensus on the definition and characteristics of hope as an academic concept (Webb, 2007). We understand it as a "goal-directed thinking, in which people appraise their capability to produce workable routes to goals (pathway thinking) along with their potential to initiate and sustain movement via a pathway (agency thinking)" (Snyder, 1989, p. 143). Hope can be understood to have both cognitive and emotional components. The cognitive component of hope enables one to construct and act upon ways to reach desired goals (Snyder, 2000). The emotional dimension is the empowering force that one reflects on further in relation to pathway and agency thinking, and motivates action in a contexts of uncertain outcomes (McGeer, 2004). In this paper, we draw on Ojala (2012b) to further explore the notion of constructive hope in the face of climate change as experienced in sustainability education. By helping to regulate students' worry in the face of climate change, hope promotes awareness raising, knowledge learning and action competence development (Ojala, 2012c). Hope is here seen as an essential strategy for coping with despair by sparking the idea that the future is possible to shape, which provides individuals with a sense of empowerment when considering the potential to collaboratively influence their future (Debaise and Stengers, 2016). This sense of collective agency, which is central to ESD, can be fostered by skills of visualization of alternative futures (Sass *et al.*, 2020; Smith and Stevenson, 2017).

By *constructive hope*, we refer to a form of hope fostering long-term, proactive environmental engagement at the collective (e.g. political engagement, participation in social movements, organizational change) and individual (e.g. lifestyle choices, individual actions) level. Past research shows that from a behavioral perspective, hope appears as an essential component for engaging individuals in solving global problems (Snyder, 2000). Others have found that the stronger the feeling of hope in the face of climate change in environmental high school education, is linked to proactive engagement (Li and Monroe, 2019; Ojala, 2012a). However, some studies relate hope to a weaker motivation for action (Hasan-Aslih *et al.*, 2018). According to Ojala (2007b), this occurs among students when hope is interpreted as denial of the seriousness of climate change, combined with a low degree of worry. This emerges wishful thinking replacing agency, or an optimistic bias inhibiting sense of responsibility for proenvironmental actions. How constructive hope can be fostered has not yet been examined in relation to specific sustainability education, or to specific

proactive engagement, and diverging findings call for exploratory research on the various modes and characteristics of constructive hope.

1.3 Aim
This study explores the role of hope amid processes inherent to sustainability university education, including the tensions between providing information, building concern and encouraging the translation of legitimate worry about climate change into proactive engagement (Stevenson and Peterson, 2016). The aim is to address how constructive hope manifests among students in sustainability university education and to give practical recommendations on how constructive hope can be fostered. To examine the role of hope as a generative force for proactive engagement, we focus on a sample of students enrolled in university programs related to global environmental challenges who demonstrate multidimensional proactive engagement. The following research questions are addressed:

RQ1. What are the characteristics of constructive hope fostering proactive engagement among students enrolled in university programs related to global environmental problems?

RQ2. How do students enrolled in university programs related to global environmental problems perceive that constructive hope could be fostered?

By bridging the two research questions, we reveal ways students perceive that their education empowers or hinders their ability to develop constructive hope and maintain proactive engagement in the long term.

2. A framework for constructive hope
This inquiry is guided by Snyder's (2000) theory of hope and Lazarus and Folkman's (1984) theory of coping strategies. Snyder's theory guides the outline of the characteristics and modalities of constructive hope, while the theory of coping strategies allows for an analysis of participants experiences and reflections on constructive hope. The framework used here is not exhaustive of the notion of constructive hope, given the diversity in cognitive, behavioral and emotional conceptualizations of hope. The two theories were selected based on Webb's (2007) conceptualization of different modes of hoping. We made the assumption that students' university enrollments demonstrate resolute hope, a mode of hoping characterized by proactive engagement despite the overall perception of an unlikely desirable future (Webb, 2007). Snyder's theory is especially relevant to explore the inner characteristics and modalities of this form of resolute hope. It involves an interrelated system of goal-directed thinking with four components: goal setting, pathway thinking, agency thinking and emotional reinforcement. Pathway thinking refers to the ability of conceiving means to attain a certain goal, whereas agency thinking refers to the capability of executing these means. These goal-pursuit cognitions cause emotions, resulting in a reinforcing relationship between cognitions and emotions (Snyder *et al.*, 2002).

Lazarus and Folkman's framework can be used to situate hope in the face of climate change into a wider emotional spectrum and sheds lights on its interlinkages with proactive engagement (Ojala, 2012b). Coping can be understood as "cognitive and behavioral efforts to manage specific external and internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus and Folkman, 1984, p. 141). Different coping strategies coexist and modulate subjects' responses to threats. The problem-focused coping strategy consists of addressing and trying to act upon the stressor or the driver of the negative emotions, whereas emotion-focused coping strategy aims at regulating or eradicating the

negative emotions themselves (Lazarus and Folkman, 1984). For the case of climate change, these two coping strategies often appear unsustainable as they imply denial of negative emotions and disengagement from actions (Ojala, 2012b). Meaning-focused coping strategies involve finding meaning based on values and beliefs (Ojala, 2012c) and are especially relevant for problems which seem unsolvable but demand active involvement such as environmental problems (Folkman and Moskowitz, 2000). Meaning-focused coping is not about alleviating negative emotions (Stevenson and Peterson, 2016), but rather acknowledging them while consciously focusing on positive trends, building resources and fostering a proactive stance toward the stressors (Greenglass and Letterman, 2002). Taken together, the theories of Snyder and Lazarus and Folkman allow for an in-depth and multidimensional analysis of constructive hope.

3. Study design
This is a qualitative study on constructive hope building on interviews with university students that were conducted as part of a master's thesis (Vandaele, 2020) and analyzed further for this article.

3.1 Interviews
3.1.1 Participant recruitment: self-report survey. Investigating hope among students enrolled in university programs related to global environmental problems is motivated by several factors. First, the academic orientation of the respondents' programs lead to the assumption that they have awareness about climate change. This assumption is critical given that knowledge is a crucial factor in predicting proenvironmental behaviors (Meinhold and Malkus, 2005). Second, it was deduced that students enrolled in such university programs acknowledge the existence of climate change and are worried about it. This reduces the risk of including students that adhere to hope based on denial (Ojala, 2012c). Due to intense exposure to messages about climate change, these students are particularly vulnerable to feelings of hopelessness, pessimism, existential anxiety and chronic stress (Chiras, 2004).

A multiple-choice online survey was used to recruit participants, designed based on existing questionnaires measuring collective proenvironmental behaviors [2]. The survey was distributed through social media and email to students enrolled in three different master's programs at Lund University, Sweden, as well as from Climate-KIC students enrolled in various European university programs related to global environmental challenges. The aggregation of answers provided a simplified performance index of the level of hope, despair, individual (e.g. transportation, diet and material consumption habits) and collective (e.g. involvement in social movements, activism and participation in political action campaigns) proenvironmental actions. This was used to recruit students with the highest indices of proactive engagement for participation in the interviews. Proactive engagement is here defined as the combination of academic (enrollment in a university program related to environmental sustainability), individual and collective engagement, corresponding to the individual and collective proenvironmental actions described above. Because the interviewees were selected mainly from Lund University, the sample is context-specific and student's replies are oriented toward the characteristics of their present university. More case studies are needed to compare our findings with other university programs, and other geographical and cultural contexts.

3.1.2 Interview design. Following an in-depth and qualitative method, the interview design aimed to produce detailed, nuanced and rich descriptions of the phenomenon rather than generalizable results (Bryman, 2012). Among the 61 respondents who participated in

the survey, a sample of 20 candidates with the highest performance index was contacted via email for interviews, among which 13 were willing to participate. Semistructured qualitative interviews were applied to extract data relating to experience, cognitive characteristics and the emotional motivational character of hope. The interview guide included 13 open-ended questions based on Lazarus and Folkman's theory of coping strategies and Snyder's theory of hope. A pilot interview was conducted, followed by 13 interviews with young adults ages 21–34 years old. The gender imbalance (2 male participants and 11 female participants) corresponds to the on average higher female attendance to university courses related to environmental sustainability, compared to male. Interviews were conducted in English, which was not the mother tongue of all participants, but was the formal language of their university programs. Caution was taken in formulations and to ensure that interviewees had time to express themselves. Their identity is kept anonymous. Each interview lasted between 1 and 2 hours and was audio-recorded and transcribed.

3.1.3 Analysis. A protocol inspired by grounded theory was applied to construct data from the interviews. The transcripts were closely read and coded in a process of initial coding based on the theoretical framework developed in Section 2, and the classification schemes from other studies on hope among young adults (Li and Monroe, 2018; Ojala, 2007a). The coding scheme enabled the emergence of high-significance and high-frequency themes through an iterative process. The codes were contextualized by theoretical sampling to refine the categories representing the overarching themes, with emerging subcategories, and exemplifying quotes.

4. Results
4.1 Characteristics of constructive hope
The results are presented according to Snyder's four characteristics of hope. For each category, different themes are illustrated with direct quotes.

4.1.1 Goal setting. Interviewees predominantly demonstrated goal-oriented modes of hoping, and they considered the hopeful future they envision as a possible and desirable collective goal, yet unlikely to be reached. Most interviewees expressed major contradictions concerning their strong belief in that human beings can construct a new way of living as agents of their destiny. Some participants also embraced a more existential form of hope, for example, one interviewee stated: "ultimately, in the end, it's going to be okay. I guess that's what hope is to me."

Most participants demonstrated an ability to depict a desirable future through visioning and recognize the potential of vision as a "powerful tool to at least have something to strive for." In general, the most commonly expressed desirable vision was a future unthreatened by environmental problems, free of global injustices, with a larger focus on values (e.g. justice, equality, democracy, freedom, compassion, embracement of complexity and harmony with nature) than on material concerns.

4.1.2 Pathway thinking. Participants expressed the importance of trust in actors in society to generate pathways towards their desired future. Various subthemes were identified. Most importantly, all participants referred to some form of trust in the collective human potential, i.e. "the diversity and the creativity of people in facing all these challenges." Some interviewees referred to a more basic trust in humanity at large considering history, the ingenuity of human beings and their inherent goodness. Social movements also represent a frequently identified pathway to a desired future. Most interviewees mentioned mitigated trust or lack of trust in political actors, and instead with "more trust and hope in local government and decision-makers." While the role and responsibility of academia was generally emphasized among participants, some expressed a lacking trust in science because of its questionable

neutrality, academic ivory towers and the myth of technological progress. They expressed various levels of trust in younger generations and recognized a rising awareness among peers over the past years, but also shared their doubts concerning if this awareness translates into action. A significant skepticism surrounded private sector actors, while interviewees expressed solid trust in the potential of nongovernmental environmental organizations, which as one interviewee put it "remind the governments of their commitments." Some mentioned trust in key representatives for movements (e.g. Greta Thunberg). Art was also mentioned as an important potential to explore and change perspective on the complexity of wicked problems. Finally, some participants demonstrated a lack of pathway thinking towards a hopeful future, as they sometimes struggled to identify "the ways that we could arrive to a society with such characteristics." Overall, interviewees' answers contained recurrent contradictions concerning identified workable routes to desired future.

4.1.3 Agency thinking. The importance of a sense of agency was widely recognized by participants. One interviewee said that "people get anxiety over climate change because they lack control over the issue." All participants expressed trust in one's own ability to contribute to climate change mitigation through professional engagement, even though various degrees of self-confidence were expressed. In addition, most participants expressed trust in their own ability to contribute to climate change mitigation through collective actions, and by raising awareness through their private networks. Participants also expressed trust in their ability to contribute to climate change mitigation through individual actions, however, with smaller impact e.g. "[. . .] but compared to the effects that I can have through my work, I don't think they are that big." Finally, students expressed feeling accountable as agents of change in their pursuit of knowledge acquisition and thereby accountable in creating new social norms. Nonetheless, the fragility of agency thinking was evident in most interviews, as participants expressed major doubts about their personal impacts and the structural constraints they face. However, even when lacking agency thinking, interviewees acknowledged the benefits of increased confidence in their personal agency. Interviewees also contrasted their sense of agency on a local and global level and overall appeared more confident in their potential for local initiatives.

4.1.4 Emotional reinforcement. The role of emotions in fostering actions was widely recognized by proactive students, as for example stated that emotions have been "a strong driver in the whole journey that I've had through understanding climate change and working about it." Participants pointed out different factors influencing their emotions in relation to action, such as peers' influence and media communication. They also extensively referred to teachers' influence and the impact of knowledge acquisition on their emotions. When asked to elaborate on the potential of negative and positive emotions in reinforcing goal-directed behaviors, participants stated a variety of opinions and coping strategies. The most common perspective among proactive students was a *meaning-focused coping strategy*, with the recognition of e.g: "positive emotions and experiences that made me want to continue, and even to become more proactive." Interestingly, interviewees emphasize the inevitable combination of positive and negative emotions as demonstrated by: "you need both in a way. I think you need the anger or the negative emotions as the engine starter and the positivity is what makes the car move." Students mainly expressed negative emotions to underline the difficulty in escaping the paralyzing and reinforcing loop of painful emotions:

> [. . .] sometimes I just have to ride through that helplessness and just feel it and let it soak in for a bit [. . .]. I can try to pull myself out of a hopelessness and try to give myself hope, but then it just feels disingenuous and makes me feel a bit more helpless.

Reversely, one participant underlined the potential of negative emotions such as guilt and anger to reinforce one's engagement. It was evident that participants were aware of positive emotional reinforcing loops, especially when they could see their proactive engagement contributing to goal attainment, resulting in a sense of empowerment, a sense of meaning and a sense of usefulness. Through these emotional loops, hope arises from engagement, as stated:

> [. . .] the more active and more proactive I became, the more it does give a sense of purpose [. . .]. It did make me feel I was in the right place, and it was a really warming and hopeful feeling.

These mechanisms of making sense are part of the reinforcement of agency thoughts (Snyder *et al.*, 2002) and is also illustrated by one participant's questioning:

> [. . .] would you rather be ignorant and rather just be happily living your life without making these decisions? I don't think so. [. . .] Even if it does come with these heavier emotions and feelings, at least it feels a little bit more deliberate and intentional, the way we live.

Most interviewees spontaneously mentioned reinforcing loops of negative emotions, often through a sense of worthlessness of their personal contribution, disempowerment and distrust in potential solutions. Furthermore, proactive students emphasized the necessity to acknowledge and accept these negative emotions to "understand that those feelings could be channeled towards something that could actually fuel better outcomes." This indicates that the profound understanding of one's hopelessness might actually be a prerequisite for more constructive ways to address painful emotions or reframe one's engagement.

4.2 Transmission modalities of constructive hope in academic context

Proactive students point out various inadequacies in the promotion of hope in the academic context and more specifically in university education. Often, interviewees explicitly depict how "it got harder to be hopeful in the rest of the world" after their enrolment in their university programs. The factors linked to academic inabilities to maintain hope identified by students are here classified under four levels.

At the first level, university structure, three subthemes were identified: limited inclusion of sustainability in other university programs, limited space to express emotions in the academic context and a lack of investments for researching hope in sustainability university education. Students expressed that their academic environment is not representative of the external world and is disconnected from other university programs as "the hardest part is they get stuck among sustainability people." They also point out the lack of structural initiatives to provide a welcoming space for the expression of feelings triggered by knowledge acquisition, which in turn results in an exclusive reliance on peers for emotional express on.

Second, at the level of the university program, interviewees described a lack of guidance on how to personally deal with emotions and stabilize the oscillating levels of hope over time. A student notices that "in the Master program that I study, there aren't many spaces [. . .] where they teach the students how to cope with this information, this knowledge that they're receiving." Some of them also feel deprived of communication skills to handle discussions with people outside their field of study and express how depressing and stressful these can be:

> [. . .] it may seem theoretically easy to do in the classroom, but then in real life, it's much harder. So, I think it's maybe an unrealistic optimism that can build within [. . .] the social environment inside the university programs.

Issues at the course level were expressed as a missing articulation between knowledge and practical actions, an the lack of means for teachers to nurture students' visioning skills of alternative futures, a lack of structural space for the collective verbalization of emotions, and a lack of emphasis of the role of inner dimensions for climate change mitigation. The missing link between knowledge and action was stressed and identified as an obstacle to concrete pathway thinking and personal sense of agency, since "being more hands on practical during the program could bring more hope." Interviewees also expressed troubles to depict the type of future they feel hope for, revealing the need for further development of goal setting and projection capabilities during the lectures. Beyond, students perceive the necessity of providing structure and time during lectures to speak collectively about the emotional dimension of knowledge: "I think that the freedom to express negative emotions is missing. It's just 'here's the information', and then it's closed." Finally, a few participants pointed out the lack of inclusiveness in their courses of the role of mindsets (e.g. values, beliefs, worldviews and paradigms) and "emotions behind climate change [...] that I've not been learning a lot about and would not have previously thought about in getting people to change."

Finally, three aspects of inadequacies concerning hope at the fourth level of students' interactions emerged. First, interviewees strongly underlined their sense of disempowerment in the face of others' hopelessness, and how this additional pressure and anxiety inhibit their own hope. The following quote illustrates this tendency:

> With my peers, we often have sessions where we just express our feelings and emotions, and we just speculate on how to support our friends in dealing with the emotions. Maybe [...] we reinforce them amongst each other. I think that can be quite counterproductive.

Second, ethical dilemmas were often mentioned in relation to a prominent sense of guilt resulting from contradictions between one's behaviors and one's knowledge and values, which they perceive as "harmful and not very sustainable for myself, emotionally." Third, the lack of time and resources in their academic engagement made them feel that "there was missing the final step that is: after incorporation of critiques, how can we make it better?".

5. Discussion

5.1 The nature and practice of constructive hope in academic context

5.1.1 Hope as part of an emotional process. This study shows that proactive students are conscious of negative emotions that arise from climate change education. It suggests that negative emotions are a potential prerequisite for individual and collective involvement in climate change actions, in line with existing research (Smith and Leiserowitz, 2014; Stevenson *et al.*, 2014). Students identified how negative emotions make them inclined to further develop their knowledge, corroborating existing studies (Yang and Kahlor, 2013). They also described how negative emotions create deliberation over alternative behaviors and lifestyles, in line with Zembylas (2015). Yet, proactive students perceived positive emotions and hope in particular as absolute necessities for long-term engagement, and positive re-appraisal as a strategy to be nurtured in parallel. This not only indicates the value of hope to foster meaning-focused coping strategies among students but also emphasizes the importance of explicit communication about the potential of combining emotions to cope constructively with knowledge on sensitive topics in education.

More specifically, proactive students perceive hope as essential to support individual emotionally viable responses for ESD. Hope is known to buffer the detrimental consequences of worry upon psychological and physical well-being (Smart Richman *et al.*, 2005). Students explicitly recognize the importance of hope, but also the difficulty of cultivating it with stability, given the various internal (e.g. other emotions) and external

influencing factors (e.g. media, peers, context, knowledge), in line with Gillham and Reivich (2004). Providing student with opportunities and tools to understand and collectively discuss their emotional processes and inner transformation is vital to promote constructive hope in the long term. Proactive students also appeared aware of the distinction between naïve optimism and hope. They dismissed a blind belief in a positive outcome to instead believe in the potential of a desired outcome, however imbued with anxiety about the possibility for an undesired outcome.

5.1.2 Hope as a path to action and actions leading to hope. Hope has promising potential to facilitate proactive meaning-focused coping strategies in the face of climate change and to reinforce both individual and collective environmental engagement (Li and Monroe, 2019; Stevenson and Peterson, 2016). The findings further suggest that awareness of the role of hope to turn negative emotions into proactive engagement is important for students to sustain constructive hope. This emphasizes the necessity to educate students to enable constructive hope, consistent with the literature (Head, 2016).

The findings demonstrate how the relationship between hope and active engagement is iterative and mutually reinforcing, rather than casual (Ojala 2007a, 2007b), which the students also were aware of. The idea that proenvironmental engagement leads to a form of embodied hope is embraced by several other authors (De Cock *et al.*, 2019; Macy and Johnstone, 2012; O'Brien, 2018). Our study builds on Ojala's (2007b) research on proactive engagement providing a form of relief to students, who then live in accordance with their conscience. Our study confirms that engagement leads to the activation of positive emotions, such as a sense of meaning, empowerment and usefulness. These findings are consistent with existing theories claiming that engaging toward a goal that transcends oneself results in positive emotions (Kerret *et al.*, 2020) and more specifically a sense of existential meaning and purpose (Ojala, 2007b). Promoting students' awareness of the bidirectional character of hope and the inner benefits of personal engagement could provide additional incentives to adopt a proactive attitude toward sustainability challenges in general.

5.2 Implications for educational methods and academic communication
Based on interview findings and literature, we suggest the following principles on how to activate potentials of innovative practices and pedagogies in university settings:

- *Goal setting*: Encourage group reflections on empowering objectives, articulating and integrating global ambitions with local cases and examples of practical implementations.

- *Pathway thinking*: Discuss and reinforce trust in the potential of collective action, in the role of social movements, and in younger generations.

- *Agency thinking*: Promote the integration of education with professional engagement, deconstruct and combine the ideas of individual versus collective responsibilities and actions, emphasize the importance of communication, and align actions with values.

- *Emotional reinforcement*: Explain the different coping strategies (promote value-based coping in contrast to problem- or solution-based strategies) and verbalize the emotional consequences of education on students' well-being.

We outline potential interventions at different levels of university education below as suggested by interviewees, including at the structural, program, course and students' interactions levels (Table 1). These should be adjusted to specific university contexts (SDSN, 2017).

Level of implication	General recommendations	Practical suggestions
Structural level of university	• Research on turning negative emotions into constructive attitude and action • Recognition of the emotional dimension of knowledge • Alignment of university's attitudes with students' values	• Further research on climate anxiety, emotions triggered by education and communication, role of education for action • Courses, seminar or other student platform on climate emotions • Establish sustainability office and clear sustainability policy Divest from fossil fuels
University program level	• Interactions with external actors and across university programs	• Cross program lecture/course on how different university fields have the potential to contribute to mitigating climate change • Field trips, internships, and expert's interventions • Partnerships with external stakeholders for thesis
	• Codevelop learning outcomes: critical thinking and positive, creative reappraisal • Strategies for turning negative emotions into constructive attitudes	• Balance of critical perspective with celebration of successful cases • Focus on local cases • Additional module or extracurricular activity on how to deal with emotions • Internal supporting structures for students facing climate anxiety (e.g. seminars, office or group therapy)
Course level	• Provide space to express emotions in relation to class • Link theoretical learning to practical implications • Leverage students' collective future visions • Facilitate interactions between teachers and students • Teachers' personal proactive engagement	• Regular sessions (optional or extracurricular) to discuss emotional processes and coping strategies openly • Include practical, solution-oriented perspectives: case studies and real-world projects • Encourage students' collective visioning and reflections on alternative futures (inspiration from utopian and critical hope) • Provide opportunities for personal conversations between students and between teachers and students • Reflexive discussion about the role and co-existence of research versus activism, academic learning and active engagement
Students' interactions level	• Reinforce community spirit and encourage students' emotional expression • Encourage students' personal proactive engagement	• Promote supportive community and cooperation among students • Organize class trips, regular group activities • Facilitate social activities from the beginning of the university program • Provide avenues to get engaged in extracurricular pro-environmental collective actions and practical projects

Table 1.
Recommended approaches to foster constructive hope and proactive engagement in university programs related to global environmental problems

At the structural level of the university, reinforcing students' trust in academia could be strengthened through deliberating on the alignment of universities' values with students' values and interest in the long term. Universities could make strategic decisions to fund research to explore the role of emotions and anxiety in relation to environmental challenges and education (Stevenson and Peterson, 2016).

University programs can implement and share experiences between programs about transformative education approaches (e.g. parallel nurturing of proactive engagement and collective visioning) (Monroe *et al.*, 2017). The balance of a critical perspective, with the celebration of small victories as part of long-term visions can encourage students to develop attainable subgoals and promote a sense of agency (Ojala, 2017) and to link theoretical learning with practical implications and engagement with external actors (Ojala, 2016a). Implementing a module or new platform for students on how to deal with emotions like anxiety could contribute to the verbalization and coping (Biesta, 2015). Academic staff could be taught how to identify personally unsustainable (i.e. problem-focused) coping strategies among their students and to transition toward alternative strategies (Ojala, 2016b).

Course content could provide further opportunities to reflect upon future scenarios (Hicks, 2014) and to understand how critical consideration of the present can help envision a desirable future (Ojala, 2016b; Wiek *et al.*, 2011). This could be facilitated with a focus on local scale, as students tend to view global futures more negatively (Threadgold, 2012). The findings suggest that university educators should be more conscious of how they infuse or annihilate students' hope. Facilitated interactions between teachers and students also play a key role in creating hope, enabling communication around emotions and opportunities to clarify pathway and agency thinking. Our findings reinforce Ojala's (2012c) argument that emotions should be perceived as key implications of learning and be given more space to discuss openly. Teachers could promote constructive coping and deactivate debilitating strategies through critical small group discussions, consistently with a pluralistic approach of education. This would provide space to confront and handle negative emotions and highlight the complex entanglements of positive and negative emotions, rather than distancing or ignoring them (Oettingen, 2012).

At the level of students' interactions, reinforcing social cohesion and communion between students could lead to the reinforcement of mutual emotional and agency support (Fielding, 2014). A certain degree of interpersonal trust is essential for education to be personally transformative (Wals, 2015), and interconnectedness with peers is a relational teaching tactic to invite but not impose change on students (Keating, 2016). Community spirit among students develops other learning outcomes, such as the ability to constructively discuss about conflicting views and the transgression of one's behavior, which in turn fosters hope (Ojala, 2017). Students should also be encouraged to engage outside the classroom and to practice transformative learning during extracurricular time, not only through changing norms but also through getting involved in collective actions and practical projects (Ojala, 2016a). Importantly, promoting agency at the level of individual consumer behavior is not sufficient to sustain long-term constructive hope and engagement (Ojala, 2017).

6. Conclusion

This study explores the multifaceted concept of hope in its complexity among university students, recognizing the cognitive, emotional and behavioral dimensions. Through identifying the performative potential of constructive hope, this study sheds light on how students perceive and experience the role of education for fostering hope and provides practical implications in higher education. While the focus of this study is on climate anxiety

among a limited and homogenous group of students, the findings and recommendations are relevant for wider university education, as well as for other educational initiatives dealing with societal and environmental threats.

This study builds on the view that constructive hope is a positive emotion and an existential necessity to navigate waters of uncertainties and global environmental threats, without falling into cynicism or passivity. Constructive hope is a coping mechanism in the face of negative emotions triggered by the messages and knowledge on climate and ecological crisis that students are exposed to on a regular basis. In brief, it helps them dealing more sustainably with their emotions on a subjective basis. Constructive hope is here also presented as a path to proactive engagement, which presents a tangible, embodied and practiced form of hope, grounded in the vision of desirable, yet possible, futures, and collectively outlined pathways to reach these futures.

We want to emphasize that to integrate psychological studies on constructive hope into ESD and transformative education for sustainability at large, these should be combined with theoretical perspectives from other social science disciplines with theory and practice that can target institutions, structures, norms and power. Future research could take a more fine-tuned approach to understanding how particular university programs, courses or teaching strategies for sustainability fosters constructive hope, as well as the relation to specific areas of action such as social movements, activism, legal mobilization, organizational leadership and political engagement. As academic staff are not exempt from climate anxiety, and suffer from, e.g. feelings of laying a burden on their students (Jimenez and Moorhead, 2021; Verlie, 2019), future studies could also explore constructive hope among sustainability university teachers.

Importantly, constructive hope needs to be put into context with underlying goals for sustainability education. This includes the normative underpinnings and ideologies of different approaches taught in sustainability education, including critique and solutions for sustainability problems. Schools of thought for sustainability stem from different theoretical standpoints that sometimes oppose each other (e.g. ideas of green growth vs degrowth). ESD needs to further and more critically engage with what type of action should be fostered. Tracing specific theories, disciplines and pedagogies to specific areas of action in social life will make studies of constructive hope more meaningful and impactful. ESD is in itself arguably a narrow paradigm for education (Kopnina, 2020). Some of the most critical and fundamental challenges of our time such as developing alternative economic models, combating structural inequality and uncovering power dynamics can be overshadowed by the need to fulfill the sustainable development goals. Constructive hope could instead be further developed with inspirations from alternative educational models (e.g. indigenous learning and ecological citizenship education) (Kopnina, 2020).

Constructive hope should be cultivated in university education at multiple levels by fostering: a sense of community; discussion and visions of the future; a sense of agency at the individual, collective and professional level; trust toward external actors; and providing space for emotional expression. Students enrolled in programs related to global environmental challenges will be the next generation providing actions and solutions for climate and global environmental concerns. Higher education institutions need to acknowledge the potential of engaging with the inner dimensions of students as change agents and to provide the support required to develop constructive hope. Hope and action are not mutually exclusive, hope provides incentive for action, and action provides a vehicle for hope.

Notes

1. "But I don't want your hope. I don't want you to be hopeful. I want you to panic. I want you to feel the fear I feel every day, and then I want you to act." Greta Thunberg. Our House Is On Fire - Jan 25, 2019. The World Economic Forum. Davos, Switzerland.

2. This includes levels of engagement in civic environmental actions (Alisat and Riemer, 2015), environmental engagement, coping strategies and well-being (Ojala, 2012b), proenvironmental behaviors in relation to hope, concern and despair (Stevenson and Peterson, 2016), proenvironmental behaviors in relation to values and self-identity (Whitmarsh and O'Neill, 2010) and a study on lifestyle choices (Wynes and Nicholas, 2017).

References

Alisat, S. and Riemer, M. (2015), "The environmental action scale: development and psychometric evaluation", *Journal of Environmental Psychology*, Vol. 43, pp. 13-23.

Barth, M., Michelsen, G., Rieckmann, M. and Thomas, I. (Eds) (2016), *Routledge Handbook of Higher Education for Sustainable Development*, Routledge and CRC Press.

Berchin, I.I., Aguiar Dutra, A.R. and Salgueirinho Osório de Andrade Guerra, J.B. (2021), "How do higher education institutions promote sustainable development? A literature review", *Sustainable Development*, Vol. 29 No. 6, pp. 1204-1222.

Biesta, G. (2015), "Teaching, teacher education, and the humanities: reconsidering education as a geisteswissenschaft", *Educational Theory*, Vol. 65 No. 6, pp. 665-679.

Bryman, A. (2012), *Social Research Methods*, Oxford University Press, Oxford.

Chiras, D.D. (2004), *Environmental Science: Creating a Sustainable Future*, Jones and Bartlett Learning, Sudbury, MA.

Corner, A., Roberts, O., Chiari, S., Völler, S., Mayrhuber, E.S., Mandl, S. and Monson, K. (2015), "How do young people engage with climate change? The role of knowledge, values, message framing, and trusted communicators", *WIREs Climate Change*, Vol. 6 No. 5, pp. 437-534.

De Cock, C., Nyberg, D. and Wright, C. (2019), "Disrupting climate change futures: conceptual tools for lost histories", *Organization*, Vol. 20 No. 5, pp. 647-658.

Debaise, D. and Stengers, I. (2016), "The insistence of the possible: towards a speculative pragmatism", *Multitudes*, Vol. 65 No. 4, pp. 82-89.

Ellis, S.J. (2004), "Young people and political action: who is taking responsibility for positive social change?", *Journal of Youth Studies*, Vol. 7 No. 1, pp. 89-102.

Fielding, M. (2014), "Democratic fellowship and the practice of human possibility", in Marples, R., Suissa, J. and Winstanely, C. (Eds), *Education, Philosophy, and Wellbeing: New Perspective on the Work of John White*, Routledge, London.

Folkman, S. and Moskowitz, J.T. (2000), "Positive affect and the other side of coping", *American Psychologist*, Vol. 55 No. 6, pp. 647-654.

Furlong, C. and Vignoles, L.V. (2020), "Social identification in collective climate activism: predicting participation in the environmental movement, extinction rebellion", *An International Journal of Theory and Research*, Vol. 21 No. 1, pp. 20-35.

Gillham, J. and Reivich, K. (2004), "Cultivating optimism in childhood and adolescence", *The ANNALS of the American Academy of Political and Social Science*, Vol. 591 No. 1, pp. 146-163.

Greenglass, E.R. and Letterman, E. (2002), "Proactive coping", in Frydenberg, E. (Ed.), *Beyond Coping: meeting Goals, Visions, and Challenges*, Oxford University Press, New York.

Griebeler, J.S., Brandli, L.L., Salvia, A.L., Leal Filho, W. and Reginatto, G. (2021), "Sustainable development goals: a framework for deploying indicators for higher education institutions", *International Journal of Sustainability in Higher Education*, Vol. 23 No. 4, pp. 887-914.

Hasan-Aslih, S., Pliskin, R., van Zomeren, M., Halperin, E. and Saguy, T. (2018), "A darker side of hope: harmony-focused hope decreases collective action intentions among the disadvantaged", *Personality and Social Psychology Bulletin*, Vol. 45 No. 2, pp. 209-223.

Head, L. (2016), *Hope and Grief in the Anthropocene: Re-Conceptualising Human–Nature Relations*, Routledge, London.

Hicks, D. (2014), *Educating for Hope in Troubled Times: Climate Change and the Transition to a Post-Carbon Future*, Trentham Books, London.

IPCC (2018), « Summary for Policymakers. In Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty », Press.

Ives, C.D., Freeth, R. and Fischer, J. (2020), "Inside-out sustainability: the neglect of inner worlds", *Ambio*, Vol. 49 No. 1, pp. 208-217.

Jimenez, J. and Moorhead, L. (2021), "'Don't say it's going to be okay': how international educators embrace transformative education to support their students navigating our global climate emergency", *Sustainability and Environmental Education across Place, Culture and Community*, Vol. 11 No. 10, pp. 593-614.

Keating, A. (2016), "Post-Oppositional pedagogies", *Transformations: The Journal of Inclusive Scholarship and Pedagogy*, Vol. 26 No. 1, pp. 24-26.

Kenis, A. and Mathijs, E. (2012), "Beyond individual behaviour change: the role of power, knowledge and strategy in tackling climate change", *Environmental Education Research*, Vol. 18 No. 1, pp. 45-65.

Kerret, D., Orkibi, H., Bukchin, S. and Ronen, T. (2020), "Two for one: achieving both pro-environmental behavior and subjective well-being by implementing environmental-hope-enhancing programs in schools", *The Journal of Environmental Education*, Vol. 51 No. 6, pp. 434-448.

Kopnina, H. (2020), "Education for the future? Critical evaluation of education for sustainable development goals", *The Journal of Environmental Education*, Vol. 51 No. 4, pp. 280-291.

Lambrechts, W., Mulà, I., Ceulemans, K., Molderez, I. and Gaeremynck, V. (2013), "The integration of competences for sustainable development in higher education: an analysis of bachelor programs in management", *Journal of Cleaner Production*, Vol. 48, pp. 65-73.

Lazarus, R.S. and Folkman, S. (1984), *Stress, Appraisal, and Coping*, Springer Publishing Company, New York, NY.

Leal Filho, W., Tripathi, S.K., Andrale Guerra, J., Giné-Garriga, R., Orlovic Lovren, V. and Willats, J. (2019), "Using the sustainable development goals towards a better understanding of sustainability challenges", *International Journal of Sustainable Development and World Ecology*, Vol. 26 No. 2, pp. 179-190.

Leichenko, R., Gram-Hanssen, I. and O'Brien, K. (2021), "Teaching the 'how' of transformation", *Sustainability Science*, Vol. 17 No. 2, pp. 573-584.

Li, C.J. and Monroe, M.C. (2018), "Development and validation of the climate change hope scale for high school students", *Environment and Behavior*, Vol. 50 No. 4, pp. 454-479.

Li, C.J. and Monroe, M.C. (2019), "Exploring the essential psychological factors in fostering hope concerning climate change", *Environmental Education Research*, Vol. 25 No. 6, pp. 936-954.

McGeer, V. (2004), "The art of good hope", *The ANNALS of the American Academy of Political and Social Science*, Vol. 592 No. 1, pp. 100-127.

Macy, J. and Johnstone, C. (2012), "Active hope: how to face the mess we're in without going crazy, new world library",

Meinhold, J.L. and Malkus, A.J. (2005), "Adolescent environmental behaviors: can knowledge, attitudes, and self-efficacy make a difference?", *Environment and Behavior*, Vol. 37 No. 4, pp. 511-532.

Monroe, M.C., Plate, R.P., Oxarart, A., Bowers, A. and Chaves, W.A. (2017), "Identifying effective climate change education strategies: a systematic review of the research", *Environmental Education Research*, Vol. 25 No. 6, pp. 791-812.

Neubauer, C. and Calame, M. (2017), "Global pressing problems and the sustainable development goals", Higher Education in the World 6: Towards a Socially Responsible University: Balancing the Global with the local. Global University Network for Innovation (GUNI), pp. 68-77.

Nolen-Hoeksema, S. (2000), "The role of rumination in depressive disorders and mixed anxiety/ depressive symptoms", *Journal of Abnormal Psychology*, Vol. 109 No. 3, pp. 504-511.

O'Brien, K. (2018), "Is the 1.5°C target possible? Exploring the three spheres of transformation", *Current Opinion in Environmental Sustainability*, Vol. 31 No. 1, pp. 153-160.

Oettingen, G. (2012), "Future thought and behaviour change", *European Review of Social Psychology*, Vol. 23 No. 1, pp. 1-63.

Ojala, M. (2007a), "Confronting macrosocial worries: worry about environmental problems and proactive coping among a group of young volunteers", *Futures*, Vol. 39 No. 6, pp. 729-745, doi: 10.1016/j.futures.2006.11.007.

Ojala, M. (2007b), "Hope and worry: exploring young people and ados values, emotions, and behavior regarding global environmental problems", Doctoral dissertation, Örebro University, Department of Behavioural, Social and Legal Sciences.

Ojala, M. (2012a), "Hope and climate change: the importance of hope for environmental engagement among young people", *Environmental Education Research*, Vol. 18 No. 5, pp. 625-642.

Ojala, M. (2012b), "How do children cope with global climate change? Coping strategies, engagement, and well-being", *Journal of Environmental Psychology*, Vol. 32 No. 3, pp. 225-233.

Ojala, M. (2012c), "Regulating worry, promoting hope: how do children, adolescents, and young adults cope with climate change?", *International Journal of Environmental and Science Education*, Vol. 7 No. 4, pp. 537-561.

Ojala, M. (2015), "Hope in the face of climate change: associations with environmental engagement and student perceptions of teachers' emotion communication style and future orientation", *The Journal of Environmental Education*, Vol. 46 No. 3, pp. 133-148.

Ojala, M. (2016a), "Facing anxiety in climate change education: from therapeutic practice to hopeful transgressive learning", *Canadian Journal of Environmental Education*, Vol. 21, pp. 41-56.

Ojala, M. (2016b), "Young people and global climate change: emotions, coping, and engagement in everyday life", *Geographies of Global Issues: Change and Threat*, Vol. 8 No. 1, pp. 1-19.

Ojala, M. (2017), "Hope and anticipation in education for a sustainable future", *Futures*, Vol. 94 No. 1, pp. 76-84.

Otto, I.M., Donges, J.F., Cremades, R., Bhowmik, A., Hewitt, R.J., Lucht, W., Rockström, J., Allerberger, F., McCaffrey, M., Doe, S.S. and Lenferna, A. (2020), "Social tipping dynamics for stabilizing earth's climate by 2050", *Proceedings of the National Academy of Sciences*, Vol. 117 No. 5, pp. 2354-2365.

Persson, L., Lundegaᶟrd, I. and Wickman, P.-O. (2011), "Worry becomes hope in education for sustainable development. An action research study at secondary school", *Utbildning and Demokrati*, Vol. 20 No. 1, pp. 123-144.

Pihkala, P. (2020), "Anxiety and the ecological crisis: an analysis of eco-anxiety and climate anxiety", *Sustainability*, Vol. 12 No. 19, p. 7836.

Sass, W., Boeve-de Pauw, J., Olsson, D., Gericke, N., De Maeyer, S. and Van Petegem, P. (2020), "Redefining action competence: the case of sustainable development", *The Journal of Environmental Education*, Vol. 51 No. 4, pp. 292-305.

Selby, D. and Kagawa, F. (Eds) (2015), *Sustainability Frontiers: Critical and Transformative Voices from the Borderlands of Sustainability Education*, Barbara Budrich Publishers, Opladen.

Smart Richman, L., Kubzansky, L., Maselko, J., Kawachi, I., Choo, P. and Bauer, M. (2005), "Positive emotions and health: going beyond the negative", *Health Psychology*, Vol. 24 No. 4, pp. 422-429.

Smith, A.G. and Stevenson, B.R. (2017), "Sustaining education for sustainability in turbulent times", *The Journal of Environmental Education*, Vol. 48 No. 2, pp. 79-95.

Smith, N. and Leiserowitz, A. (2014), "The role of emotion in global warming policy support and opposition", *Risk Analysis*, Vol. 34 No. 5, pp. 937-948.

Snyder, C.R. (1989), "Reality negotiation: from excuses to hope and beyond", *Journal of Social and Clinical Psychology*, Vol. 8 No. 2, pp. 130-157.

Snyder, C.R. (2000), "Genesis: the birth and growth of hope", in Snyder, C.R. (Ed.), *Handbook of Hope*, Academic Press, San Diego.

Snyder, C.R., Rand, K.L., King, E.A., Feldman, D.B. and Woodward, J.T. (2002), "'False' hope", *Journal of Clinical Psychology*, Vol. 58 No. 9, pp. 1003-1022.

Stevenson, T.K. and Peterson, M.N. (2016), "Motivating action through fostering climate change hope and concern and avoiding despair among adolescents", *Sustainability*, Vol. 8 No. 1, p. 6.

Stevenson, T.K., Peterson, M.N., Bondell, H.D., Moore, S.E. and Carrier, S.J. (2014), "Overcoming skepticism with education: interacting influences of worldview and climate change knowledge on perceived climate change risk among adolescents", *Climatic Change*, Vol. 126 Nos 3/4, pp. 293-304.

Taber, F. and Taylor, N. (2009), "Climate of concern – a search for effective strategies for teaching children about global warming", *International Journal of Environmental and Science Education*, Vol. 4 No. 2, pp. 97-116.

Tayne, K., Littrell, K.M., Okochi, C., Gold, U.A. and Leckey, E. (2021), "Framing action in a youth climate change filmmaking program: hope, agency, and action across scales", *Environmental Education Research*, Vol. 27 No. 5, pp. 706-726.

Threadgold, S. (2012), "'I reckon my life will be easy, but my kids will be buggered': ambivalence in young people's positive perceptions of individual futures and their visions of environmental collapse", *Journal of Youth Studies*, Vol. 15 No. 1, pp. 17-32.

UNESCO (2019), "Framework for the implementation of education for sustainable development (ESD) beyond 2019", UNESCO Digital Library, available at: https://unesdoc.unesco.org/ark:/48223/pf0000370215 (accessed 22 December 2021).

Vandaele, M. (2020), "Hope as a generative force: a form of hope to be nurtured by academic institutions to foster proactive engagement among university students", Master thesis, Lund University.

Verlie (2019), "Bearing worlds: learning to live-with climate change", *Environmental Education Research*, Vol. 25 No. 5, pp. 751-766.

Wallis, H. and Loy, S.L. (2021), "What drives pro-environmental activism of young people? A suvey study on the fridays for future movement", *Journal of Environmental Psychology*, Vol. 74 No. 1, p. 101581.

Wals, A.J. (2015), "Beyond unreasonable doubt: education and learning for socio-ecological sustainability in the anthropocene", Wageningen University.

Walsh, Z., Böhme, J., Lavelle, B.D. and Wamsler, C. (2020), "Transformative education: towards a relational, justice-oriented approach to sustainability", *International Journal of Sustainability in Higher Education*, Vol. 21 No. 7, pp. 1587-1606.

Wamsler, C. (2019), "Contemplative sustainable futures: the role of individual inner dimensions and transformation in sustainability research and education. Sustainability and the humanities", in Leal Filho, W. and Consorte McCrea, A. (Eds), *Sustainability and the Humanities*, Springer, Cham.

Wamsler, C. (2020), "Education for sustainability: fostering a more conscious society and transformation towards sustainability", *International Journal of Sustainability in Higher Education*, Vol. 21 No. 1, pp. 112-130.

Webb, D. (2007), "Modes of hoping", *History of the Human Sciences*, Vol. 20 No. 3, pp. 65-83.

Whitmarsh, L. and O'Neill, S. (2010), "Green identity, green living? The role of pro-environmental self-identity in determining consistency across diverse pro-environmental behaviours", *Journal of Environmental Psychology*, Vol. 30 No. 3, pp. 305-314.

Wiek, A., Withycombe, L. and Redman, C.L. (2011), "Key competencies in sustainability: a reference framework for academic program development", *Sustainability Science*, Vol. 6 No. 2, pp. 203-218.

Wynes, S. and Nicholas, K.A. (2017), "The climate mitigation gap: education and government recommendations miss the most effective individual actions", *Environmental Research Letters*, Vol. 12 No. 7, p. 74024.

Yang, Z.J. and Kahlor, L. (2013), "What, Me worry? The role of affect in information seeking and avoidance", *Science Communication*, Vol. 35 No. 2, pp. 189-212.

Zembylas, M. (2015), "'Pedagogy of discomfort' and its ethical implications: the tensions of ethical violence in social justice education", *Ethics and Education*, Vol. 10 No. 2, pp. 163-174.

About the authors
Mathilde Vandaele is a doctoral researcher at the Institute of Geography and Sustainability at the University of Lausanne, Switzerland. Her research interests include ecopsychology, peasantness and new peasantries, urban and rural imaginaries and indigenous methodologies.

Sanna Stålhammar is a postdoctoral researcher at the Swedish University of Agricultural Sciences. Her research interests include human–nature connection and values of ecosystem services and biodiversity. Sanna Stålhammar is the corresponding author and can be contacted at: sanna.stalhammar@slu.se