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Transformative adult climate education: disorientation and dialogue, capability and community through *Climate Fresk*

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Abstract

This article investigates action for climate empowerment (ACE) in the context of adult learning. There is relatively little attention to adult climate education, despite their central roles in governance, workplaces, homes, communities and systems-level decision-making. In this article, we examine *Climate Fresk*, a discussion-based, tabletop game based on evidence from the Intergovernmental Panel on Climate Change's Sixth Assessment Report. Although over 2.3 million people have participated globally, empirical research on adults' experiences remains scarce. Using a qualitative design, we analyse original empirical data from in-depth interviews with 23 UK-based facilitators who have facilitated workshops in sectors including aerospace, agri-food, construction, education, finance, government, technology and oil and gas. Findings suggest that facilitators experience *Climate Fresk* as providing legitimacy to speak about climate change, alongside knowledge to inform activism, professional and institutional recognition, and a supportive community. Challenges exist in relation to infrastructure and resilience of the facilitator ecosystem. Data suggest that the power of *Climate Fresk* lies less in direct behaviour change outcomes and more in its capacity to create dialogic spaces in which adults identify and work through disorienting dilemmas. Facilitators therefore tend to emphasise education as a transformative process of collective sense-making, mindset shifting and community building, rather than individualised action. We use empirical data to develop existing theoretical models of transformative climate education. We argue that by integrating cognitive, affective and praxis-oriented dimensions of learning (head-heart-hands), and by fostering collective voice and relational engagement ('togetherness'), *Climate Fresk* may support forms of engagement aligned with ACE, as perceived by facilitators.

Introduction

Responding to the climate crisis requires transformational change to dominant Western economic and social structures. This ambition is reflected in 'Action for Climate Empowerment (ACE)' under Article 6 of the UN Framework Convention on Climate Change (UNFCCC). ACE aims to empower all members of society to engage in climate action through climate change education, public awareness and training (UNFCCC, n.d.). Adult education is important because adults occupy roles - as professional leaders, employees, citizens, policymakers, teachers, parents and voters - that reproduce the social, economic and

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4 cultural norms underpinning high-emission societies which lead to inertia on climate action
5 (Gavrilakis et al., 2021). In the UK, many organisations have set a target of net zero by 2030,
6 alongside the national target of 2050. Many climate education initiatives focus on young
7 people in schools and universities, despite the fact that approximately 80% of the 2030
8 workforce is already in employment (UK Parliament, 2024). As Nicol and Higgins (2021)
9 have argued, if education is to support transformation in the mainstream rather than at the
10 margins, learning opportunities must be brought to where adults already live and work.
11 Adults can apply learning immediately within professional, civic, household and community
12 contexts, share learning with others and participate in civic and political activity such as
13 voting (Zarestky & Rocco, 2024). Climate education for adults is therefore widely considered
14 to play a critical role in accelerating the transition away from high consuming and emitting
15 cultures through changes to social and economic systems.
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20 Whilst there has been scholarly attention to identifying characteristics of ‘effective’ climate
21 change education, definitions of effectiveness vary and relatively few of these centre on adult
22 education beyond education settings. Evaluations of environmental education programmes
23 employ diverse criteria, from knowledge gain and/or changes in attitude to behaviour change
24 (e.g. Monroe et al., 2017). Morrissey Gleeson and Morrissey (2024) define effective climate
25 change education as that which possesses the capacity to develop agents of change. Their
26 systematic review found that pedagogies that foster deep understanding of the climate crisis
27 and our entanglement within it, as well as the capabilities to respond to it, are the foundation
28 of effective climate change education. However, their review focuses primarily on
29 compulsory education. Content and pedagogies applicable in compulsory education may be
30 less applicable in adult contexts, where learners face constraints of time and availability,
31 engage voluntarily or through workplace requirements, and bring established identities,
32 responsibilities and motivations to learning experiences.
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37 Gavrilakis et al.(2021) identify characteristics of a ‘qualified’ adult environmental educator
38 including a robust knowledge base, competencies in communication and group dynamics,
39 explicit ethical-environmental vision and values, and a reflective disposition. They recognise
40 persistent challenges to adult environmental education, such as inadequate funding, staff
41 shortages, limited time for educators and learners, and motivation of adults to participate in
42 education programmes. Although some adults in Gavrilakis et al.'s (2021) study worked in
43 community or corporate settings, most worked closely with school teachers as their main
44 audience. There is a need to understand the experiences of adult educators working beyond
45 the education sector.
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49 One approach to adult community and work-based climate change education which aims to
50 promote understanding of the climate crisis and our entanglement within it, and which
51 includes an exploration of how we might respond is the *Climate Fresk* workshop. This is
52 widely used in contexts from communities to multinational corporations, from universities to
53 activist groups. To date, it has reached 2.3 million people in 168 countries (*Climate Fresk*,
54 2026), and whilst there are calls for effectiveness studies (e.g. Hognon et al., 2025) little
55 research exists on the approach. The purpose of this study is to understand the experiences of
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adult facilitators of *Climate Fresk*, and the role of *Climate Fresk* in transformative adult environmental education. This article makes two contributions: it provides an empirical account of *Climate Fresk* facilitators' experiences, and it extends transformative learning theory by evidencing the importance of relational and collective dimensions ('voice' and 'togetherness') alongside cognitive, affective and praxis-oriented learning.

What is *Climate Fresk*?

*Climate Fresk*¹ is a single-instance 3-hour workshop which translates evidence from the IPCC Sixth Assessment Report (2022) into an accessible tabletop card game. It is a reproducible and scalable approach to climate education, based on 44 cards containing information from IPCC reports (there is a child version with fewer cards, but this study focuses on the adult version only). Participants organise cards by cause and effect, and map connections and feedback between cards (Figure 1), then respond creatively and emotionally and explore ways of acting. Its stated purpose is 'to accelerate the understanding of climate issues at the global level in order to help trigger the necessary changes for the preservation of life as soon as possible' (*Climate Fresk*, n.d.). It is presented as apolitical, impartial and based on science and as such the association does not advocate for specific solutions, and they define themselves as non-partisan but political (it does not support a particular political party, but it is inherently political because it is trying to shape the way society is organised) (*Climate Fresk*, 2026, p. 9). Previous research (Prusinski, 2024) has found that an 'apolitical' framing is important for protecting environmental education, and avoiding alienation of participants, as well as supporting the development of critical thinking (i.e. telling people what to think *about* but not what to think, or similarly that action is needed, but not determining which actions), particularly in 'conservative' settings.

Although the basic workshop format - a collaborative card sort grounded in scientific knowledge - will be familiar to many educators, *Climate Fresk* is tightly governed in key respects. The materials are protected under a Creative Commons CC BY-NC-ND license, which requires attribution to the creator, Cédric Ringenbach, permits free use for non-commercial purposes, and prohibits modification of the cards or game structure. This restriction is intended to prevent so-called 'lethal mutations' (Brown and Campione, 1996), whereby educational programmes become distorted if they become too far removed from the evidence or principles of the approach upon which they are based. This prohibition on modification may limit educators' ability to adapt evidence-informed practices to specific social, cultural or institutional contexts, and may reinforce social norms around the ownership and capitalisation of knowledge.

Climate Fresk is disseminated through a train-the-trainer model, with no pre-requisites for facilitation beyond participation in a *Climate Fresk* workshop and completion of a three hour facilitator training. This relatively low barrier to entry in terms of educational background or

¹ The workshop originated in France under the name 'La Fresque du Climat', with a fresque being a mural, describing the layout of cards. It is also sometimes known as 'Climate Collage'.

[illegible]

Research to date has tended to focus on *Climate Fresk* as a pedagogical proposal (e.g. Jollet et al., 2025; Gaunet et al., 2024), and on analyses of didactics (Delplancke & Chalak, 2025; Faure, 2024). Nordin & Walström (2022) investigated *Climate Fresk* in a corporate setting, finding improved understanding and ability to engage in the company's climate strategy. However the authors highlighted the importance of role models in advocating for change,

1 while noting that scepticism about meaningful action persisted due to the high-emitting
2 nature of the business. Whilst the standardised nature of the workshop could lend itself well
3 to experimental design in a way that few educational programmes do, what is effective
4 depends on what you are trying to achieve, why you are trying to achieve it, and there is not
5 always agreement on this. Biesta (2007; 2025) has argued that a focus on ‘what works’ in
6 education ‘won’t work’ because effectiveness is often poorly defined, or relates to very
7 narrow outcomes, often reduced to knowledge gain and therefore rejects the totality of the
8 educational experience. In the context of *Climate Fresk*, and climate change education more
9 broadly, there is no consensus about what ‘effective’ means, what the desired outcomes are,
10 or whether and how such outcomes can be measured. Even if consensus existed, it is not
11 trivial to identify a meaningful control or comparison group. Indeed, it may be unrealistic to
12 expect a single instance educational experience - by itself - to ‘be effective’. Instead, the
13 present study seeks to understand the experiences of a specific group of adults - *Climate*
14 *Fresk* facilitators - in the context of transformative climate change education, through the lens
15 of transformative learning theory.

23 **Theoretical framework: transformative learning theory**

24 According to the IPCC (2023), transformational changes are needed to social, economic and
25 political systems in order to achieve a sustainable and equitable world. *Climate Fresk*
26 explicitly positions itself as contributing to such transformation, aiming to activate what it
27 describes as the ‘necessary changes’ to preserve life on Earth’. Climate change and climate
28 justice demand change at both individual and societal levels. Learning that involves merely
29 transmitting information or encouraging incremental behaviour change is insufficient.
30 Instead, learning processes that are capable of supporting transformation at scale are required.
31 Kwauk and Casey (2022) describe adaptive skills for transforming unjust social and
32 economic structures, including coalition building, collective action, interrelational thinking,
33 systems thinking and the ability to work within complexity. These capacities resonate with
34 transformative learning theory, which conceptualises learning as a process through which
35 individuals critically examine taken-for-granted assumptions and develop new ways of
36 understanding themselves and the world. Mezirow (1978) describes perspective
37 transformation as a process of ‘learning how we are caught in our own history and reliving it’
38 (p.101), accompanied by the thought (cognitive), feeling (emotional) and will (volitional)
39 shifts that enable the reconfiguration of relationships with others, institutions and society, as
40 well as the criteria for valuing and taking action. Whilst *Climate Fresk* does not adopt an
41 explicitly historical or autobiographical approach, it does present a causal narrative of climate
42 change. This invites participants to re-examine dominant assumptions about human-
43 environment relations.

44 Transformative learning theory has evolved through the influence of Kuhn’s work on
45 paradigm shifts, Freire’s concept of *conscientização* or critical consciousness, and Habermas’
46 theory of communicate action and intersubjectivity (Kitchenham, 2008). Across these
47 traditions, education for transformation is understood to involve more than knowledge. It
48 encompasses critical reflection, the development of capacities for action, and the acquisition
49

of knowledge and skills needed to live differently (Freire, 1974; Kitchenham, 2008; Bueddefeld et al., 2022). Freire (1974) describes critical transitivity as the level of critical consciousness at which people believe that they *can* make changes, with critical thought linked to critical action, i.e. when people are empowered to act. Critical transitivity is characterised by deep interpretation of problems, identification of causal links, testing one's ideas and actions, revising one's ideas and actions, sound argumentation, and the practice of dialogue (Freire, 1974).

Mezirow (2000) describes four ways of learning to bring about a structural shift in thought, feelings and actions: elaborating existing frames of reference, learning new frames of reference, transforming habits of mind and transforming points of view. However, critics of transformational learning have argued that transformation is, or can be, an emotional process (Grund et al., 2024; Hathaway, 2026) and that learning environments fail to provide space for processing emotions associated with climate change. Research on climate literacy programmes found that few support emotional wellbeing, despite evidence that suggests that this is crucial for psychological readiness (Jackson et al., 2025). Sipos et al. (2015) account for this critique by proposing a model of transformative learning that integrates learning objectives across 'head, heart and hands', accounting for cognitive, affective and action-oriented dimensions of learning (Figure 2). This model allows transformation to occur through changes in knowledge, emotions, values and ways of being in the world, as well as through action. Olsen et al.'s (2024) systematic review found that pedagogical approaches that involve head, heart and hands support learners to process their emotions surrounding climate change. The head-heart-hands framework is frequently used to describe the *Climate Fresk* workshop (e.g. *Climate Fresk*, 2023)

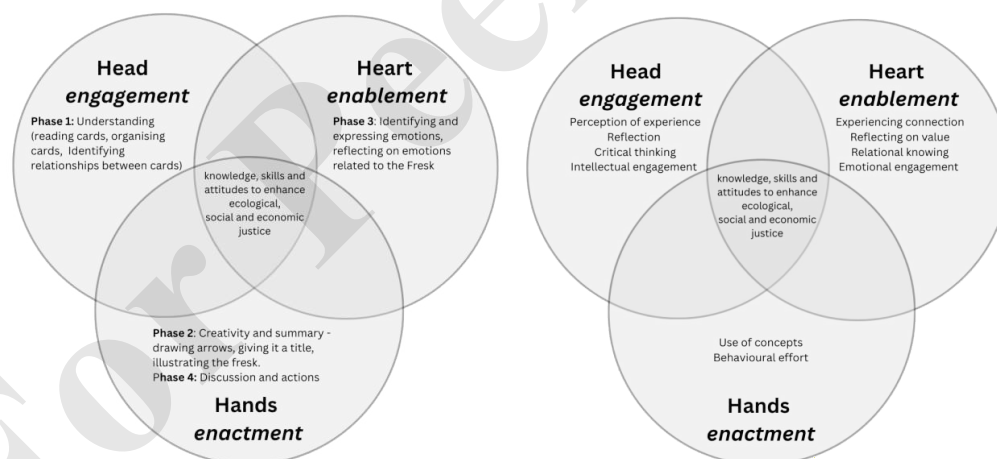


Figure 2: Sipos' 'Head, Heart, Hands' model of transformative learning (left) and applied to *Climate Fresk* (right)

Despite widespread adoption, there is little empirical research on how *Climate Fresk* is experienced in terms of knowledge sharing, emotional engagement and action orientation, or how these experiences relate to its transformative education underpinnings. This study focuses

on the experiences of facilitators, who occupy a distinctive position as both participants in and mediators of the workshop. The research question guiding this study is: What are facilitators' perspectives on and experiences of *Climate Fresk*?

Methodology

A qualitative, phenomenological approach was used to focus on experiential aspects of climate change education embedded in a lived space and time (Raza, 2024). Phenomenological approaches are appropriate when data are contained within the perspectives of people involved in education programmes and when the researcher engages with these people directly (Groenewald, 2004). Phenomenological investigation involves a 'bracketing' or suspension of the 'everyday assumption of the independent existence of what is perceived' (Schwandt, 2011). Here, the focus was therefore on facilitators' interpretations and experiences of *Climate Fresk*, rather than on evaluating the workshop against predefined criteria of effectiveness.

Sampling

Non-probability sampling was used to recruit facilitators via the *Climate Fresk* UK community online notice board, the community directory and invitations to facilitators known to us. We aimed to speak to facilitators of *Climate Fresk* in the UK with different levels of experience. The sample of 23 facilitators can be described as both purposive (based on characteristics, here, having trained as a *Climate Fresk* facilitator and facilitated at least once) and convenience (drawn from a population conveniently accessible to us). Facilitators progress through a 'belt' system based on experience (Table 1). The sample included a total of 2 blue, 8 green, 7 orange and 6 yellow belt. No white belts are included because our focus was on the experiences of facilitators, and white belts do not yet have facilitation experience. Ten facilitators were also facilitator trainers, collectively having trained over 1000 facilitators. Since beginning this study, the requirements for progression within the belt system have become more demanding, reflecting a broader effort within the *Climate Fresk* community to strengthen quality assurance of facilitation.

Belt	Meaning	Minimum time commitment to obtain belt
White	Completed facilitator training	6 hours
Yellow	Facilitated or co-facilitated one workshop	9 hours
Orange	Facilitated 10 workshops	36 hours
Green	Facilitator trainer, 15 workshops facilitated, observed, interviewed	51 hours
Blue	Facilitated 20 trainings, observation, interview	111 hours

Table 1: Levels of facilitation (*Climate Fresk* (2025)). Note that these requirements have now changed.

Participants facilitated *Climate Fresk* in a wide range of settings, including corporate, small business, charitable, councils, government departments, community and religious groups, activist organisations, education providers and other adult spaces. They facilitated workshops both online and in person, locally and internationally, voluntarily and for payment. Table 2 presents a summary of participants' characteristics in relation to *Climate Fresk*, with precise figures replaced with ranges to ensure anonymity.

Data collection and analysis

Ethical approval was obtained from the relevant departmental ethics committee and voluntary informed consent obtained from participants in line with BERA's ethical guidelines for research (5th Edition). Online, in-depth open-ended, semi-structured interviews lasting approximately one hour (see supplementary material for interview guide) were conducted. Interviews shared reasons for doing the research and explored participants' experiences and perspectives on *Climate Fresk* as participant and facilitator, their approach to facilitation, the impact that *Climate Fresk* has had, and their intentions in relation to what they want participants to know, feel and do at the end of the workshop. Interviews were conducted, recorded on Zoom, transcribed, read, checked and analysed by both authors.

Codebook thematic analysis was used to analyse the transcripts. This method sits between coding reliability approaches and reflexive thematic analysis as it involves a structured approach to coding (without reliability measures) and a qualitative philosophy, with some themes determined in advance of analysis and themes conceptualised as summaries of domains (Braun et al., 2019). In the first round of analysis, each interview transcript was read and initial notes, impressions and potential themes shared. Responses to each question were coded, with codes developed a) inductively from data and b) deductively from transformative learning theory. For example, desired outcomes were mapped onto codes developed deductively from Sipos' et al's (2015) 'Head, Heart, Hands' model, with desirable outcomes identified across all three domains, whereas other codes such as 'political neutrality as a way into spaces' were identified from interview data. When all transcripts had been read and codes identified, these were clustered into higher order themes representing patterns across the dataset. The higher order themes and associated data extracts were input into a shared spreadsheet as column headers (such as legitimacy, impartiality, community) to facilitate collaboration. The transcripts were then re-read and coded using the higher order themes. Themes were then interpreted using transformative learning theory. The researchers met for analysis meetings throughout the project to discuss insights emerging. Recruitment ceased when no new insights were generated. This point, commonly referred to as 'saturation' is when no additional issues are identified and data has begun to repeat, so further data collection is redundant (Hennick & Kaiser, 2022). This was determined when no new codes were generated, and there were no new interpretations of existing codes. Hennick and Kaiser's (2022) analysis indicates that this is usually reached in 9-17 interviews.

Pseudonym	Time since first Fresk	No. facilitations	Summary of experience with Climate Fresk
F1*	3-4 years	100+	In person, international, community, business, education
F2*	≥4 years	100+	Online, in person, international, business, government, community, education
F3*	2-3 years	20-49	Mainly in person, international, local, community, business, education groups
F4*	3-4 years	20-49	Mainly online, international, business
F5*	≥4 years	50-99	Business, mainly in person, online with international groups.
F6*	≥4 years	50-99	Mainly in person, business, community, government
F7*	≥4 years	20-49	Mainly business
F8*	3-4 years	20-49	Mainly in person, community, business, government and education
F9*	≥4 years	100+	Online, in person, international, business, community, education
F10	≤1 year	20-49	International, online, face to face, business, education
F11	3-4 years	20-49	Community, business, education, mainly in person.
F12	3-4 years	10-19	Mainly business, education
F13	1-2 years	10-19	Online international, mainly in person, community
F14*	3-4 years	50-99	Online, in person, international, business, community, education, friends, family
F15	3-4 years	10-19	In person, community, government
F16	1-2 years	10-19	Online, in person, education, community
F17	≥4 years	20-49	Mainly in person, community and business
F18	1-2 years	10-19	In person, mainly education settings
F19	2-3 years	1-9	In person, mainly education settings
F20	≤1 year	1-9	Mainly community
F21	2-3 years	1-9	In person, community, business
F22	1-2 years	1-9	In person, mainly community, education
F23	1-2 years	1-9	In person, mainly education

Table 2: Facilitator characteristics

* denotes also a *Climate Fresk* facilitator trainer. ‘Community’ includes workshops for specific groups e.g. charities, NGOs and faith groups as well as open public workshops. ‘Business’ includes small, medium and large businesses and multinational corporations. The minimum number of participants required to run a Fresk is 4, so we calculate that this group has reached more than 3396 people.

Findings

The interviews revealed a wide range of ways in which facilitators experience and understand *Climate Fresk*. For some, facilitating the Fresk is a form of ‘lived activism’, reinforcing commitment to climate action and a way of contributing directly to the climate movement. For others, it functions as a space for connection across differences (in terms of backgrounds, experiences, lived realities), enabling dialogue about what is happening in the world and fostering a sense of shared legitimacy around climate concerns. Facilitators also described *Climate Fresk* as a means of nurturing a community, building bridges and connecting people, developing communication and facilitation skills, as a learning process that deepened their understanding of climate change, and as a tool for reorienting organisational or corporate roles toward sustainability (where facilitators held a professional position in an organisation).

There were notable differences in the outcomes facilitators hoped participants would experience (Table 3). While some articulated relatively clear desired outcomes, others emphasised that *Climate Fresk* operates primarily as a catalyst rather than as an educational programme designed to generate specific or measurable outcomes. Knowledge went beyond scientific mechanisms of the greenhouse effect to include knowledge of cause and effect, systems and how these interact, urgency, seriousness, and how to act together. Whilst one facilitator rejected the importance of emotions, most described both positively and negatively valenced emotional responses as valuable. Facilitators expressed a desire for participants to feel *something*. Emotional responses were often framed not as an ends in themselves, but as necessary conditions for facilitating change. Facilitators emphasised the importance of avoiding leaving participants in emotional states such as despair or paralysis which might inhibit action. In terms of action, rather than focusing on individual emissions-reduction behaviours, facilitators emphasised changing mindset, connecting with others, and acting in accordance with newly integrated knowledge and emotions. Action was thus framed as ongoing, relational and identity based, rather than as a checklist of behaviours that one did or did not do after the workshop.

In the following section, we present the findings in relation to transformative learning theory, and in the discussion, we extend and interpret existing models of transformative education for adult climate change education.

Know ('Head')	Feel ('Heart')	Do ('Hands')
<p>Reality</p> <ul style="list-style-type: none"> Climate change is real There is strong scientific evidence for climate change The gravity of the situation Climate change is a problem <p>Urgency</p> <ul style="list-style-type: none"> Change is happening now It is urgent to tackle climate change <p>Cause and effect</p> <ul style="list-style-type: none"> Human responsibility for climate change The causes and effects of the climate crisis The connections between different causes and effects The implications of greenhouse gas pollution <p>Systems</p> <ul style="list-style-type: none"> That the problem is systemic Powerful institutions need to change Current powers and systems act against transformation <p>Contingency</p> <ul style="list-style-type: none"> We can fix the problem Transformation is possible They can do something That every action matters What they need to do <p>Solidarity</p> <ul style="list-style-type: none"> Climate change affects everyone How to talk about the climate change challenge That they are not alone 	<p>Moved</p> <ul style="list-style-type: none"> Like they have been on a rollercoaster Something! <p>Generally positive</p> <ul style="list-style-type: none"> (Actively) Hopeful Joyful Calm Excited Positive <p>Positively negative</p> <ul style="list-style-type: none"> Angry Not so depressed that they feel they can't do anything about it Pressure Shocked <p>Wisdom</p> <ul style="list-style-type: none"> Curious Inspired to learn more That they have learnt something useful Enlightened <p>Solidarity</p> <ul style="list-style-type: none"> Part of a community It's not binary - every bit of warming avoided will prevent suffering That other people care That it's serious but we are in it together <p>Ready to act</p> <ul style="list-style-type: none"> Activated Poised Primed Ready to attack the task Motivated Urgency Energised It's not too late <p>Able to act</p> <ul style="list-style-type: none"> That they have the ability to make a difference Empowered Agency More confident More capable <p>Indifference</p> <ul style="list-style-type: none"> We need to get out of the emotion stuff 	<p>Change self</p> <ul style="list-style-type: none"> Shift mindset Notice what is happening Learn more Think about it Stay engaged Consume less Empathise with more radical action Align with feelings and knowledge <p>Connect with others</p> <ul style="list-style-type: none"> Share understanding with others Tell people about their actions Connect with others Get to know their neighbours Tell friends Talk about it Start a conversation Train as a facilitator Reach out to others <p>Act</p> <ul style="list-style-type: none"> Something new Do things in the community Get involved in something bigger than themselves Just do anything Something Expand citizenship

Table 3: Facilitators' intended outcomes from Climate Fresk

Transformative learning through *Climate Fresk*

Facilitators described *Climate Fresk* as a moment rather than the totality of a transformative experience. Their learning, from the *Fresk* and their facilitation of it, included reconfigurations of personal, professional and community projects and identities. This reconfiguration involved trying new ways of doing, working and being, and building new habits. In the following section, we organise the findings into three main themes: (1) disorienting dilemmas, self examination and critical assessment, (2) developing new skills and capabilities and (3) exploring new roles and reintegration.

Disorienting dilemmas, self examination and critical assessment

For many facilitators, the *Climate Fresk* laid foundations for honest and difficult conversations by enabling participants to construct the *Fresk* for themselves. This process encouraged systems thinking and supported facilitators' own ongoing learning. As one facilitator noted, 'every time I play the game, I make another connection and another connection...' (F15). By making causal relationships visible, the *Fresk* presented disorienting dilemmas for facilitators and participants, allowing people to 'join the dots' (F12). This often involved a reframing of the climate crisis itself. One facilitator described a moment of clarity in which responsibility shifting from saving the planet to recognising the fragility of human systems and ways of life:

The planet is going to be absolutely fine...what we're talking about saving here is the world as we know it and the way we like to be so we can have a nice life.(F16)

These realisations related not only to the scale and severity of the climate crisis, but also to the scale of ignorance and to motivations underpinning climate action, including love and care. Facilitators described recognising that they were 'trying to protect life, our life' (F1), while others experienced shock and despair when confronting the scale of the problem: 'this is actually worse than I thought... I thought, oh god, we're fucked, you know, it's that kind of...we're going in the wrong direction' (F22). Moments of disorientation were attributed to the cards, the connections made between cards, the emotions elicited, and facilitated conversations - particularly with participants who disagreed about the type of action needed. Facilitators described the nature of disagreements as comfortably uncomfortable - as supportive environments to express unpopular views and disagree agreeably. According to F4 this involved:

Being quite direct in a slightly playful way, challenging them but also being quite good intentioned...with a bit of humour, bit of humility.

These moments were seen as crucial for deeper inquiry and reflection. Sometimes, facilitators sought out disorienting dilemmas, and they occasionally arose before or during workshops, particularly in corporate contexts. For example, facilitators reported concerns about existential questions:

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2
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4 they [the business hosting a *Climate Fresk*] were a bit worried that the outcome is that
5 people will start challenging our business model and...they didn't really know how to
6 cope with it (F5).
7
8

9 Several facilitators actively positioned themselves working in high-emitting industries and
10 outside perceived climate 'echo chambers'. One described feeling 'very fortunate' to engage
11 with climate delayers, deniers and right-wing participants because 'that's where the edge is'
12 (F9). These contexts generated moments of disorientation for facilitators themselves. For
13 instance, one reflected on being challenged for eating a beef burger during a workshop in a
14 high-emitting industry, prompting reflection on the expectations individuals can have around
15 moral perfection (particularly of climate educators) and the focus on individual behaviours
16 rather than structural norms.
17
18

19
20 The whole table said 'she talks about climate change, and then she takes a beef
21 burger'. And I remember being a bit like, wow, okay, so they expect me to be Gandhi
22 here, they expect me to be Greta Thunberg...this made me reflect a lot, I read a lot at
23 that time about what does it mean...(F7)
24
25

26 This points to climate educators being held to 'perfect' standards, which can be counter
27 productive, as F10 noted, 'if you are striving for perfection, then you will not do anything'.
28 While challenging, many facilitators expressed gratitude for these difficult experiences,
29 viewing them as essential to personal growth and preparedness for social change. For
30 example, F7 explained:
31
32

33 I want to be ready for when the world changes, not feeling as I'm panicking and I lost
34 everything...I want to be as close as possible [to] people who don't think like me. And
35 even if sometimes it can be good to be with like-minded people just for the mental
36 health, I don't want to be too close to that. This is how we keep open, I think, and
37 aware of what is happening.(F7)
38
39

40 Others noted defensiveness, guilt or fear of judgement among participants. Even when the
41 *Fresk* is introduced as being non-judgemental, some reported 'people justifying
42 themselves...rather than them actually caring and making adjustments' (F21). Some
43 facilitators questioned the timing in workshops of calls to action, observing that 'asking
44 someone who is in shock to commit to actions is just not the right point' (F15).
45
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47 Facilitators discussed the challenge of moving forward in an inspirational way:
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50 Maybe not challenging but inspiring them to say 'hey, you could actually do more and
51 you could be even happier doing more...the more time we have together dancing or
52 playing, it's time that we are not travelling, that we're not polluting, so we can come
53 together.(F13)
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4 Holding space for such varied responses to these disorienting dilemmas required facilitators
5 to manage their own emotions while supporting others. Repeated exposure to the scale of the
6 climate crisis took a toll, with some facilitators reporting degraded morale, moral injury, or
7 feeling ‘overwhelmed to the point we go numb...or so agitated that we become super anxious
8 and whatever we do is not enough’ (F20). Many felt that facilitation training alone was
9 insufficient, particularly for those new to the role, and emphasised the need for debriefing
10 practices, peer support and restorative work.
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14 Intergenerational and intercultural workshops were felt to be particularly powerful because
15 they allowed participants to engage with lived experiences of ‘really big floods, or more
16 intense hurricanes, or...crop failure’ (F13) and prompted considerations about adaptation.
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19 Overall, this theme illustrates how *Climate Fresk* contributes to transformative education by
20 creating disorienting dilemmas through cards and conversations, and by fostering critical self-
21 reflection among both participants and facilitators.
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24 **Developing new skills and capabilities**

25 *Climate Fresk* developed facilitators’ capabilities to communicate about climate change and
26 to engage others in meaningful dialogue. Facilitators reported gains in knowledge, confidence
27 and legitimacy, particularly among those previously engaged in forms of climate activism,
28 who felt better equipped to “talk about sustainability....in a way that I understand it now”
29 (F22). The structure of the *Fresk* supported the articulation of a common narrative, in a way
30 other workshops don’t do, by ‘getting people together and getting the story articulated in a
31 common way’ (F14).
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35 These capabilities extended beyond acquisition of climate knowledge to include facilitation,
36 communication and systems thinking. Facilitators described learning to ask critical questions
37 and provoke participants, and get them to connect abstract climate risks to everyday
38 experiences.:
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41 I very much emphasize that all roads lead to a decline in agricultural yields...look at
42 the price of olive oil, look at the price of coffee...one of the lines that I'm using at the
43 moment.. is: can you explain to your board, or your mum, or both, why you need to
44 get ready for floods and droughts at the same time? (F8)
45
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47 Facilitators developed skills in active listening, reframing, challenging without judgement
48 and building group cohesion. This was especially important when participants felt
49 overwhelmed by the scale of the system: ‘it’s too big, and I’m just little old me, what I do
50 doesn’t make a difference” (F18). Repeated engagement with diverse audiences helped
51 facilitators to develop the capacity to remain with discomfort, while strengthening their
52 emotional attunement and relational sensitivity. One facilitator described how, despite the
53 crisis accelerating, they felt
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4 more patient, more empathetic, more open minded...I feel like that's a better
5 headspace to be in. (F9)
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8 Other facilitators described developing skills to frame climate change in ways that resonated
9 with participants' pre-existing priorities, using these as a basis for shared understanding:
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11 I...try and understand more what triggers people, and how to communicate with them,
12 like, find what...what resonates with them, so that I can find common ground, and
13 then I can say, okay...you're worried about your grandchildren, say. and then maybe
14 focus more on what's gonna happen in the future... (F5)
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17 These constructive approaches were employed beyond the context of the *Fresk*, influencing
18 facilitators' interactions with friends, family and colleagues.
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21 Facilitators developed a range of strategies to process the interactions and emotions arising
22 during workshops. These included cultivating personal and collective resilience (such as
23 fostering shared understanding to find empathy for those who challenge fundamental beliefs),
24 seeking support from friends and family, spending time outdoors, staying physically active,
25 scheduling recovery time, and practising self-care. Facilitators also engaged in local and
26 international networks and participated in resilience training. However, resilience-building
27 was not widely perceived to be well supported by the train-the-trainer model. As F18 put it:
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31 I definitely think people need to build their capacity...to deal with, you know, to be
32 resilient, ...to be okay to handle suffering and pain, and to deal with any eventualities.
33 I don't think *Climate Fresk* prepares them
34
35

36 For some, the emotional burden and overwhelm associated with the demand for workshops
37 led to stepping back from facilitation to prioritise other forms of action aligned with their
38 values, such as restoration or food systems work. However, these decisions were at times
39 accompanied by feelings of guilt:
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42 the kind of defeatism is disheartening...It degrades my morale...I think I'm probably
43 going to shift my energy. I'll still deliver *Fresk*, but...shift my energy to nature and
44 restoration and food, because I feel time's ticking on. You know, we... we all need to
45 eat. (F15)
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48 Others found hope through deeper engagement with solutions as part of the *Fresk*:
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51 the more I explored the solutions...and the work people are already doing, I had more
52 and more confidence that it's possible,...the more I could share with other people.(F10)
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55 Relatedly, in a corporate settings, facilitators reported that the workshop gave them
56 legitimacy to enter buildings, to ask questions of industries including aviation and oil and gas,
57 and to legitimise suggested actions which might be 'key to opening something much wider'
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(F6). This enabled facilitators to remain true to their values and challenge corporate norms from within, reaching those with decision making authority more readily:

you get to say things like ‘this sector cannot continue’ ...how it is, if we're to have a livable future you know, that's the sort of thing I might have said through a megaphone on a street. (F6)

Others were sensitive in how they talked about the transition away from fossil fuel dependency, recognising that this currently represents potential loss of livelihood for people:

people are literally being made redundant now, we have money being pulled out and a lack of confidence in renewables, and political flip-flopping. (F12)

Exploring new roles and reintegration

‘I want to live in this better world. I really want to make it happen’ (F10)

Facilitators described personal journeys in which they sought to align their lives more closely with their values, often through radically changing their housing situation, career, diet and relationships- attempting to ‘walk the walk’. For some, this alignment helped maintain focus and momentum. For example, F15 explained, ‘every time I do it, it brings the climate crisis into focus...it’s made me [act] faster and stay focused.’ (F15)

These shifts were frequently prompted through conversations (both structured and unstructured) in the *Fresk*, and facilitators viewed this dialogic quality as central to the workshop’s impact. As F17 put it ‘if someone was to say they’re going to take one thing from the workshop I’d rather it be the way of working rather than them learning a new piece of information’.

For many, transformation was therefore less about specific behaviours than about ways of relating to others. Whilst personal change was ongoing for some, others had rolled back efforts where infrastructure did not support them, or where deviation from social norms became exhausting or ‘socially isolating’ (F3). Reintegration was therefore an ongoing and negotiated process rather than a linear progression.

Climate Fresk also enabled some facilitators to inhabit new roles within the climate movement. Some described strengthening their activism or ‘amplify[ing] the movement locally’ (F17), while others shifted from direct action to education as a way of engaging with despair more constructively: ‘I was looking for a way to live my despair, but in a positive way...There was something else at the end.’ (F1)

Several described facilitation as an alternative to disruptive protest (although these facilitators still tended to support direct action), allowing them to engage decision-makers directly while

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4 avoiding personal risk. For one facilitator, this felt like a strategic shift, and one that has
5 developed them personally:
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8 I've been inside buildings running Fresks. where I've been arrested outside the
9 building, and been like, this feels more useful to go in there, and people go, please tell
10 us to about climate change, rather than the outside and just be carted off.... I've, like,
11 also professionalized a lot, because I didn't really have a career before that I felt proud
12 of at all. (F2)
13
14

15 For others, *Climate Fresk* gave facilitators legitimacy to act in contexts where overt activism
16 felt unsafe or inappropriate. F1 described *Climate Fresk* as a way of participating in a
17 collective struggle safely, particularly in a country where other avenues were closed:
18
19

20 I can't be an activist in a country that's not mine. I can't stand out of the crowd. I need
21 to be under the radar. And even though I have a passport now, I still don't feel like I
22 should take that risk. So I go to marches, but I would never, like, belong to an activist
23 group. So this has been very rich for me...(F1)
24
25

26 The perceived neutrality and scientific framing of *Climate Fresk* was seen as opening doors
27 (particularly to corporate settings) that might otherwise be closed to discussions explicitly
28 framed around justice, fairness or politics. At the same time, the science presented through
29 the cards was understood to prompt engagement with economic and political questions.
30 Whilst some facilitators described *Climate Fresk* as 'a corporate form of activism' (F6),
31 others expressed concern about the risks of greenwashing. As F7 noted, 'transition is a word
32 invented by oil and gas companies because they know that transition means tomorrow'.
33 Facilitators often held these tensions reflexively, questioning their own complicity while still
34 valuing the opportunity to engage:
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38 Am I complicit in greenwash? You know, that's a question I ask... my intention going
39 in is to connect with human beings...whether that changes the corporate environment
40 or not, it might shift...and that's, you know... a small but significant enough
41 opportunity. F6
42
43

44 This often meant engagements were uncomfortable, with some facilitators encountering
45 constrained agency and organisational inertia: 'it made people feel uncomfortable, but maybe
46 that's important'. (F3)
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48

49 Beyond individual workshops, *Climate Fresk* prompted facilitators to join or create
50 communities for shared learning, and to develop new ways of being rooted and connected. As
51 F20 noted, there was a 'sense of responsibility once people have that level of understanding
52 that we've exposed them to..' (F20) which was associated with a perceived need to embed the
53 workshops within participants' own communities. In response, facilitators often took on
54 mentoring or coaching roles and helped to build wider networks and infrastructures of
55 support.
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I feel that there's a kind of a growing community of us who are trained as facilitators here...and it's nice to feel part of that community. (F23)

I guess I see the *Climate Fresk* as a...It's a practice...for what we will continue to face as things unravel and change. And it's an amazing opportunity to practice working together collaboratively, both as a facilitator network and wider community. (F6)

For some, this extended to rethinking the conditions under which climate work is done, including concerns about unpaid labour and extractive structures in society. As F9 reflected, facilitators grappled with how to generate 'good paid work' while championing 'collaboration over competition' and supporting 'others unpaid but impactful work'.

Finally, some facilitators identified ways in which *Climate Fresk* could inadvertently reinforce less sustainable values, such as the hierarchical structure of the belt system and its emphasis on achievement, which may encourage competition, and a focus on quantity of workshops delivered rather than quality. This illustrates both how facilitators were experimenting with new roles and ways of being, and the tensions that they encountered when integrating these learning experiences into their wider lives.

Discussion

This study explored facilitators' perspectives on, and experiences of *Climate Fresk* within the context of transformation adult climate education. As the analysis draws on facilitators' accounts, the findings reflect the reported experience and interpretations rather than direct evidence of participant outcomes or behavioural change. Within this scope, the findings offer insights into how *Climate Fresk* is understood and enacted as a form of adult climate education.

Transformative environmental education for adults is tricky. Adults are typically juggling the demands of personal, work, family, social and community life, which can make it difficult to engage those who are not already curious or concerned about climate change, and to create meaningful learning experiences that neither downplay its seriousness nor leave people paralysed by despair. At the same time, adults are an important group to reach in order to enable broader societal engagement with climate action; they are often characterised by independence, a capacity for self-direction, and varying degrees of autonomy in making choices and taking responsibility for their actions. *Climate Fresk* is a tool that allows facilitators to reach adults in a range of settings, from local communities, friends, and families to charities, faith groups, NGOs, and multinational corporations, as well as in intergenerational and intercultural groups, both online and face-to-face. In the findings above we presented evidence on how *Climate Fresk* was experienced as transformative by facilitators. In this section, we interpret these findings using the 'head', 'heart' and 'hands' model (Sipos et al., 2015), which we extend on the basis of empirical data from the interviews with facilitators. This extension incorporates collective voice and relational

engagement ('togetherness') as key dimensions of transformative climate change education (Figure 3).

Firstly, 'head'. *Climate Fresk* facilitators consistently described how the workshop stimulates discussion and reflection in response to disorienting dilemmas, difficult questions and exposure to alternative deeply held belief systems, consistent with the development of critical consciousness (Freire, 1974). Rather than positioning the workshop as a mechanism for delivering pre-defined outcomes, many facilitators framed it as a catalyst for sense-making, in which participants are invited to engage with complex climate information and with one another. Facilitators recounted moments of their own and others' surprise, ambiguity, contradiction, irony and discomfort. Affifi and Hensley (2025) argue that these moments are required in pedagogies in the Anthropocene because they loosen the desire for perfect clarity and certainty. Facilitators' reflections indicate that the key to learning is seeing how everything is connected through the ordering of cards and having an opportunity to discuss non-linear connections, causal chains, and feedback loops. Research indicates that meaningful societal experiences with science are essential for fostering climate action (Larrain et al., 2024).

Secondly, 'heart'. Facilitators reported that feelings of disorientation arose both from engagement with knowledge about the climate system, its drivers and consequences, as well as from dialogue with participants. Facilitators described ongoing exposure to negative emotions, resulting from repeated engagement with crisis narratives and accounts of suffering embedded in the workshop content, as well as from interactions with workshop participants. The effort to go against the grain and to maintain a stance that is perceived by participants as balanced and non-judgement, particularly when facilitating sessions with senior executives in aerospace or oil and gas sectors, was sometimes experienced as emotionally demanding and draining, especially for less experienced facilitators. These negative emotional experiences often prompted deep reflection, and several facilitators referenced the 'Work that Reconnects' (Macy & Brown, 2014) as a way of responding. This approach works with, and through, feelings of grief, fear, and despair in order to cultivate gratitude, compassion, imagination, community and collective action (Hathaway, 2016). This orientation was evident in some facilitators' accounts of facilitating with love, care and patience. These facilitators described an ability to communicate across difference and to voice - or empower others to voice - the reasons why acting on climate change is both difficult and necessary, often within groups of influential actors with a greater capacity to drive change. 'Voice' is therefore an important dimension of transformational adult climate change education, enabling both expression and the possibility of being heard.

Finally, 'hands'. There was considerable diversity in how facilitators approached the 'Action' section of the workshop. *Climate Fresk* does not present pre-defined responses or solutions (as games such as *Daybreak* do), and it can be challenging for adults who are new to climate change to generate meaningful actions within the timeframe of the workshop. For many facilitators, individual behaviour change served as an entry point, although they expressed a tension between the accessibility of such actions and the need for broader system change.

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4 This aligns with Kenis and Mathijs' (2012) paradox that individuals engage in behaviour
5 change because it is in their reach, even when they doubt its effectiveness. Whilst
6 transformative learning theory often focuses on changes in individual perspectives, some
7 facilitators described transformative action in relational terms, emphasising connection with
8 others and with the planet. In these accounts, participants demonstrated what Freire (1974)
9 terms 'critical transitivity' through deeper interpretation of systematic problems and
10 experimentation of new ways of being. This included facilitators realising that their most
11 impactful work might not be their paid work, shifting from thinking of oneself as a consumer
12 to a citizen, and cultivating deeper connections with others. This shift from individual
13 behaviour change to collaboration and the development of resilient communities highlights
14 the importance of 'togetherness' as a foundational condition for learning through 'head, heart
15 and hands'. This is consistent with Cho (2025), who argues that collective identity, challenge
16 and conflict are integral to transformative learning, with learners situated within relational,
17 cooperative and interconnected contexts. In the context of *Climate Fresk*, workshops are
18 inherently collective and co-operative: participants work together to organise cards to
19 understand the climate system and the impacts of change, and participate in facilitated
20 dialogue about emotions, responsibilities and possible responses. However, workshops are
21 relatively short in duration and participants may not meet each other again, therefore it is
22 unsurprising that many facilitators felt that there is value in embedding them within
23 institutional and community settings that enable the development of sustained collective
24 identity or ongoing collective action.
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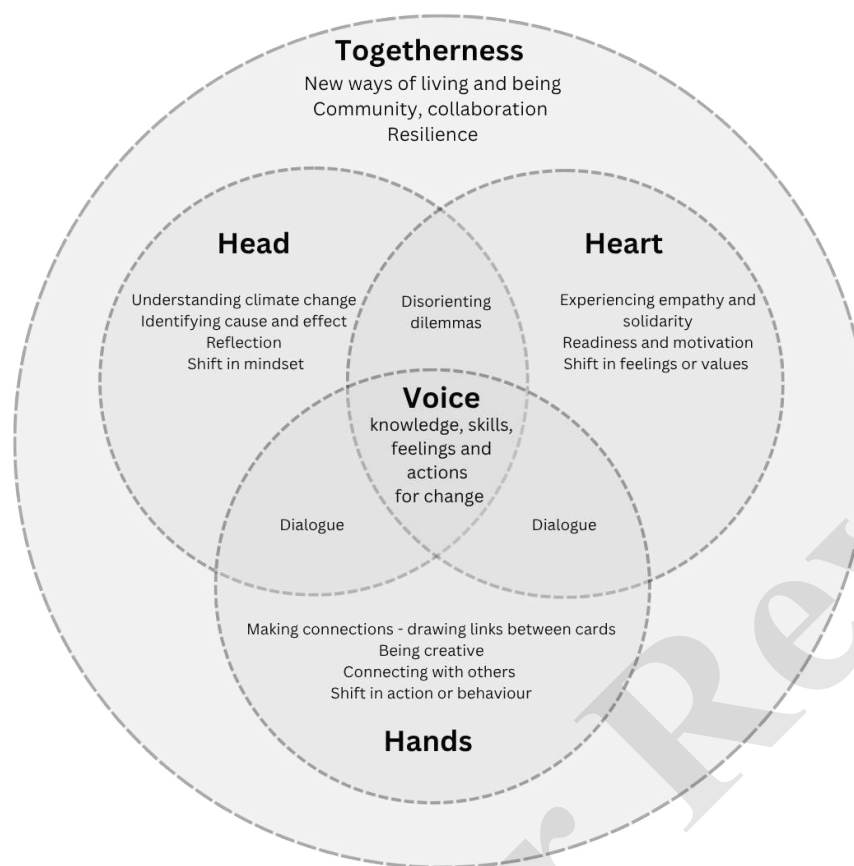


Figure 3: Transformative climate change education for adults

In summary, the facilitators we interviewed were transforming themselves, creating moments for transformation of others, and creating new communities to support these transformations. Facilitators' accounts suggest that *Climate Fresk* may support processes associated with transformative learning, including encounters with disorienting dilemmas, critical reflection and the exploration of new roles and ways of being. However, facilitators did not describe the transformation as occurring within the workshop alone. Instead, transformation was understood as partial, ongoing, and distributed across time and contexts.

The findings also suggest a potential extension to existing models of transformative learning. While the 'head, heart, and hands' framework (Sipos et al., 2008) is able to capture the cognitive, affective and action oriented dimensions of learning, facilitators' interviews emphasised the importance of relational and collective processes. In particular, participants' ability to articulate perspectives ('voice') and to engage with others in shared spaces of dialogue ('togetherness'), were described as being central to the learning experience. Rather than constituting additional domains, these elements can be understood as relational conditions through which cognitive, emotional and praxis-oriented learning are sparked and sustained.

Limitations

This study has several limitations. Firstly, it draws exclusively on facilitators' accounts and does not include participant perspectives or observational data, limiting the strength of claims regarding educational and social outcomes. Secondly, although *Climate Fresk* is an international organisation, the study focused on facilitators based in the UK. Findings may therefore reflect specificities of the UK context, despite participants' diverse nationalities and international facilitation experience (both in person and online).

A further limitation is that we interviewed only current facilitators. Several participants referred to individuals who had stepped away from facilitating *Climate Fresk* due to factors such as burnout or shifts in beliefs about where their efforts are most needed. These former facilitators may hold important perspectives not captured in this dataset. Although we considered recruiting this group, we judged it unethical to approach individuals who had deliberately disengaged from this work, particularly where this may have related to health or wellbeing.

Finally, the study is shaped by the authors' insider positionality: both authors are *Climate Fresk* facilitators (neither have voluntary or paid roles with the organisation). This insider positionality may have influenced recruitment, rapport, and interpretation of the dataset, including a risk of confirmation bias. To maintain analytical rigour, we used a common semi-structured interview guide, clearly explained data use and anonymisation to participants, and sought to create space for critical perspectives. Whilst our insider status facilitated shared understanding, we took care during interviews to de-centre our perspectives and prioritise participants' lived experiences, actively probing assumptions and differences in motivations and viewpoints. For example, we used responses such as 'thank you', 'that is interesting', 'can you tell me why?', rather than evaluative comments, or agreeing or disagreeing with participants. During analysis, we considered alternative interpretations, retained divergent viewpoints, and reported challenges and limitations in the findings.

Conclusion

This study offers the first in-depth account of *Climate Fresk* facilitators' experiences and how they understand the workshop within the context of transformative adult education. Our findings show that facilitating *Climate Fresk* can potentially stimulate moments of disorientation that support the development of key capacities and new ways of being for facilitators. This appears to occur through facilitators' self examination and critical reflection, as well as through enhanced communication skills, reported increases in confidence, and ways of processing emotions. The facilitators' accounts suggest that the learning environment is important, with space for dialogue, emotional processing, and collective engagement (not lecturing), particularly in contexts where participants have varying life and professional experiences, values, and constraints.

We find little evidence that an instance of *Climate Fresk* alone is sufficient for transformational learning. Rather, it is perceived as a tool that can facilitate understanding and dialogue about climate change, develop facilitators' communication skills and networks, and support facilitators by providing legitimacy, a way to live differently and aligned with values, access to decision-makers, and an income stream. Building on these insights, the study contributes to transformative learning theory by highlighting the importance of relational and collective dimensions of learning. In particular, 'voice' and 'togetherness' emerge as conditions through which cognitive and affective domains may be activated and sustained in adult climate education contexts. While these interpretations are based on facilitators' perspectives, they point to the potential value of educational approaches that foreground dialogue, emotional engagement and collective sensemaking. Future research could extend this work by incorporating participant perspectives and examining how such learning processes unfold across different contexts and over time.

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Climate Fresk: education to action

The purpose of this research is to understand the experiences, intentions and observations of Climate Fresk facilitators in relation to mainstreaming climate education and awareness.

Introduction

- Why did you decide to become a Climate Fresk facilitator?
- The stated purpose of Climate Fresk is (copy into chat)
 - ‘To accelerate the understanding of climate issues at the global level in order to help trigger the necessary changes for the preservation of life as soon as possible’
 - To what extent do you agree with this statement? - check this question
 - To what extent do you think Climate Fresk achieves this? Do you think it works to achieve this purpose? What evidence from your personal experience suggests that it does? What about from your facilitation experience?
- Where does Climate Fresk sit with your other voluntary or professional activities? (does it constitute a lot of what you do, for example, or is it an occasional, voluntary activity)
- What motivates you to facilitate Climate Fresk workshops?

Climate Fresk and your facilitation

- How would you describe facilitation in the context of Climate Fresk?
- How do you facilitate the actions section? Why do you do it this way?
- What impact has the Climate Fresk workshop had on you? Please talk us through your initial experience with Climate Fresk and what actions you have taken that you would attribute to Climate Fresk.
 - What sort of actions were you involved with before Climate Fresk?
 - What sort of actions have you been involved with since - any new actions? Any actions you don't prioritise?
- Has your facilitation of the workshop changed over time, and if so, how?
- What does being a Climate Fresk facilitator mean to you now, compared to when you started?
- Has your experience of being a Climate Fresk facilitator influenced any other aspects of your life?
- What keeps you engaged with facilitating after so many workshops?
- What types of groups have you facilitated Climate Fresk with?
- Where have you facilitated (online, different countries?)

Climate Fresk as a social movement

- Can you describe your involvement (or not) with the Climate Fresk community - how do you participate? Why do you participate (or not)? (For example: meetings, online communications, messaging...?)
- Do you feel part of a movement through your work with Climate Fresk?
- To what extent do you feel you share purpose, identity and commitment with others in the Climate Fresk community? (prompt for each)
- What is your experience of Climate Fresk in challenging those with power within the current economic and political system? Have you observed challenges, or how do you experience them through the groups you facilitate with?
- Are you involved in any other climate education movements/groups?

Concluding questions

- What do you want the people you facilitate Climate Fresk with to a) know at the end b) feel at the end c) do at the end? Is this different for the different groups you facilitate?
- If Climate Fresk was a drink, what would it be, and why?
- If you could sum up the impact of Climate Fresk in 3 words, what would they be?
- Is there anything you would like to say about Climate Fresk that you have not had the opportunity to say?

Thank you for taking part in this interview.

Belt	Meaning	Minimum time commitment to obtain belt
White	Completed facilitator training	6 hours
Yellow	Facilitated or co-facilitated one workshop	9 hours
Orange	Facilitated 10 workshops	36 hours
Green	Facilitator trainer, 15 workshops facilitated, observed, interviewed	51 hours
Blue	Facilitated 20 trainings, observation, interview	111 hours

Pseudonym	Time since first Fresk	No. facilitations	Summary of experience with Climate Fresk
F1*	3-4 years	100+	In person, international, community, business, education
F2*	≥4 years	100+	Online, in person, international, business, government, community, education
F3*	2-3 years	20-49	Mainly in person, international, local, community, business, education groups
F4*	3-4 years	20-49	Mainly online, international, business
F5*	≥4 years	50-99	Business, mainly in person, online with international groups.
F6*	≥4 years	50-99	Mainly in person, business, community, government
F7*	≥4 years	20-49	Mainly business
F8*	3-4 years	20-49	Mainly in person, community, business, government and education
F9*	≥4 years	100+	Online, in person, international, business, community, education
F10	≤1 year	20-49	International, online, face to face, business, education
F11	3-4 years	20-49	Community, business, education, mainly in person.
F12	3-4 years	10-19	Mainly business, education
F13	1-2 years	10-19	Online international, mainly in person, community
F14*	3-4 years	50-99	Online, in person, international, business, community, education, friends, family
F15	3-4 years	10-19	In person, community, government
F16	1-2 years	10-19	Online, in person, education, community
F17	≥4 years	20-49	Mainly in person, community and business
F18	1-2 years	10-19	In person, mainly education settings
F19	2-3 years	1-9	In person, mainly education settings
F20	≤1 year	1-9	Mainly community
F21	2-3 years	1-9	In person, community, business
F22	1-2 years	1-9	In person, mainly community, education

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F23	1-2 years	1-9	In person, mainly education
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Know ('Head')	Feel ('Heart')	Do ('Hands')
<p>Reality</p> <ul style="list-style-type: none"> Climate change is real There is strong scientific evidence for climate change The gravity of the situation Climate change is a problem <p>Urgency</p> <ul style="list-style-type: none"> Change is happening now It is urgent to tackle climate change <p>Cause and effect</p> <ul style="list-style-type: none"> Human responsibility for climate change The causes and effects of the climate crisis The connections between different causes and effects The implications of greenhouse gas pollution <p>Systems</p> <ul style="list-style-type: none"> That the problem is systemic Powerful institutions need to change Current powers and systems act against transformation <p>Contingency</p> <ul style="list-style-type: none"> We can fix the problem Transformation is possible They can do something That every action matters What they need to do <p>Solidarity</p> <ul style="list-style-type: none"> Climate change affects everyone How to talk about the climate change challenge That they are not alone 	<p>Moved</p> <ul style="list-style-type: none"> Like they have been on a rollercoaster Something! <p>Generally positive</p> <ul style="list-style-type: none"> (Actively) Hopeful Joyful Calm Excited Positive <p>Positively negative</p> <ul style="list-style-type: none"> Angry Not so depressed that they feel they can't do anything about it Pressure Shocked <p>Wisdom</p> <ul style="list-style-type: none"> Curious Inspired to learn more That they have learnt something useful Enlightened <p>Solidarity</p> <ul style="list-style-type: none"> Part of a community It's not binary - every bit of warming avoided will prevent suffering That other people care That it's serious but we are in it together <p>Ready to act</p> <ul style="list-style-type: none"> Activated Poised Primed Ready to attack the task Motivated Urgency Energised It's not too late <p>Able to act</p> <ul style="list-style-type: none"> That they have the ability to make a difference Empowered Agency More confident More capable <p>Indifference</p> <ul style="list-style-type: none"> We need to get out of the emotion stuff 	<p>Change self</p> <ul style="list-style-type: none"> Shift mindset Notice what is happening Learn more Think about it Stay engaged Consume less Empathise with more radical action Align with feelings and knowledge <p>Connect with others</p> <ul style="list-style-type: none"> Share understanding with others Tell people about their actions Connect with others Get to know their neighbours Tell friends Talk about it Start a conversation Train as a facilitator Reach out to others <p>Act</p> <ul style="list-style-type: none"> Something new Do things in the community Get involved in something bigger than themselves Just do anything Something Expand citizenship