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ARTICLE

Advancing Climate Literacy through Storytelling, Cli-Fi, and Input from the Arts: A 2CG® Framework

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Abstract

This article examines the transformative potential of the 2CG® (Content- and Context-specific Generic Competency Coaching) method in advancing climate education across disciplines, hierarchies, and cultures. Drawing on case studies and theoretical insights, it demonstrates how this multi-method approach deepens emotional engagement through imagination, challenges entrenched behaviours, and supports the development of climate-responsive competencies. By integrating polyphonic storytelling, poetry, the arts, and climate fiction, the 2CG® framework empowers learners to critically engage with ecological issues and adopt climate-conscious behaviours. Central to the approach is the co-creation of climate imaginaries — transformative narratives that interweave human and more-than-human perspectives to foster deep reflection, relational awareness, and contextually grounded action. Overall, this pedagogical model cultivates the cognitive, emotional, and dialogical capacities learners need to navigate complexity and contribute meaningfully to just and regenerative transitions.

Keywords: climate literacy; 2CG® multi-method approach; 21st century skills; communities of practice; polyphonic storytelling; the arts; transformative education

Introduction

In the face of escalating climate crises, transforming environmental education is no longer optional — it is essential. This transformation demands a shift from traditional fact-based models to holistic, participatory, and action-oriented pedagogies that immerse learners in meaningful, locally grounded inquiry, dialogue, and hands-on projects (Monroe et al., 2019). Transformative educational frameworks have emerged as vital tools for equipping learners with the skills and capabilities, attitudes, and agency to navigate and address complex environmental challenges effectively. They cultivate critical reflection, challenge ingrained assumptions, and support the development of different perspectives and adaptive problem-solving strategies (Mezirow, 2000). The need for such transformation in climate education is increased by the psychological phenomenon of *eco-paralysis* — a condition characterised by profound feelings of powerlessness, helplessness, and inaction in response to the perceived enormity of climate threats (Albrecht, 2019). Media narratives that focus on catastrophic outcomes frequently intensify this sense of paralysis, reinforcing negativity bias and undermining individuals' motivation to engage proactively (Rozin & Royzman, 2001; Norris et al., 2011; Voelkel et al., 2021). Moreover, cognitive research suggests that the human brain is

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ill-equipped to process abstract, long-term risks such as climate change, resulting in diminished attention and behavioural disengagement (Clayton, 2020).

Integrating emotional engagement and narrative for transformative climate education

To counter these challenges, transformative educational strategies must integrate emotional engagement and narrative framing. Empirical evidence indicates that emotionally resonant storytelling and value-based narratives significantly enhance cognitive processing and foster sustained environmental action (Nabi et al., 2018; Oatley, 1999). They can help learners develop a sense of agency and foster deeper emotional and ethical connections to climate issues.

The current paper examines the transformative potential of the 2CG® content and context framework, a multi-method approach aimed at advancing 21st-century skills, including digital literacy, critical thinking, imagination, collaboration, empathy, and climate literacy. Integrating narrative techniques, climate fiction, the arts, and persuasive communication skills, the 2CG® method not only addresses the cognitive aspects of learning but also attends to the emotional and social dimensions, aligning with contemporary understandings of effective environmental education. A theoretical introduction of the model is followed by 3 case studies that illustrate how the 2CG® framework is brought to life.

Methodological foundations of the 2CG® approach

2CG® — an acronym for Content- and Context-specific Generic Competency Coaching — is founded on a systemic-constructivist educational philosophy that prioritises the co-creation of knowledge through collaborative and experiential learning, enriched by artistic and context-sensitive methods (Merl, 2022). Its multi-method design draws upon social learning theory and the concept of meaning-making within Communities of Practice (CoPs), conceptualising learning as a socially situated, dialogical process driven by shared inquiry and active participation (Wenger, 1998; Wenger-Trayner, 2014) (see Table 1). Building on this foundation, the framework incorporates the

Table 1. Fundamental pillars of communities of practice where learners take ownership and collaborate effectively

CoP Pillar 1. Intrinsic motivation is crucial for learning	
The role of intrinsic motivation in 2CG® learning environments	Learners are enabled to discover their passion and define their purpose. They are guided by the question: *What's the difference we want to make?*
CoP Pillar 2. Learners engage in shared practice	
The role of shared practice in 2CG® learning environments	Learners continually reflect how their learning activities relate to their professional, real-life context and practice. Deep learning can happen when the learning is anchored in a shared practice, a shared interest, and a shared purpose.
CoP Pillar 3. Learning is a social process	
Sense of belonging in 2CG® learning environments	Both in real life and in virtual settings, social cohesion, trust, and a sense of belonging are the foundation of fruitful learning and collaboration. For deep learning to take place, learners need to define how they want to interact with each other.
CoP Pillar 4. Deep learning follows the principle of impulse – action – reflection	
The role of action learning in 2CG® learning environments	Social constructivist learning processes are based on the action-learning principles of "impulse – action – reflection" and incorporate the cognitive, emotional and psychomotor dimensions of learning.

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principle of constructive alignment to ensure coherence between intended learning outcomes, instructional strategies, and assessment practices (Biggs, 1996; Reinmann, 2018). Additionally, the model is informed by the higher-order cognitive processes delineated in Bloom's revised taxonomy (Anderson & Krathwohl, 2001). Its core aim is to cultivate an open space for critical thinking and exploration, emphasising active knowledge construction over passive reception, thereby fostering deeper cognitive and metacognitive engagement among learners.

Communities of practice as catalysts for transformative learning

As socially embedded, interdisciplinary meaning-making systems, Communities of Practice (CoPs) are particularly well-suited to foster climate literacy, where complex, interdependent challenges demand plural perspectives and collaborative responses. They enable transformative action while cultivating ethical awareness, critical reflection, and collective capacity — competencies that are essential for navigating the uncertainty and systemic nature of climate change. In the context of 2CG®, CoPs are understood as dynamic, evolving spatial networks — encompassing formal, informal, and virtual interactions — that are shaped by cultural, relational, and material dimensions. The spatial-relational aspect is evident in the case studies presented in this article, where learners from diverse educational, professional, and geographic backgrounds reflected on climate issues in their contexts and co-created optimistic climate narratives. Set in universities, upper secondary vocational schools, and neighbourhoods, the workshops functioned as temporary yet impactful cross-cultural communities in which intergenerational dialogue, cross-disciplinary inquiry, and iterative reflection supported transformative learning.

Grounding climate literacy in place, culture, and narrative

Building on the role of Communities of Practice (CoPs) as dynamic sites for participatory learning in context (see Table 1) aligns with Place-Based Education (PBE), which emphasises the importance of situating climate learning within the cultural, ecological, and socio-political realities of specific communities (Gruenewald, 2003; Smith & Sobel, 2010; Kudryavtsev et al. (2011). 2CG® cultivates a space for polyphonic expression — embracing culturally diverse ways of knowing and acknowledging the voices of non-human entities — where learners are encouraged to collaboratively imagine just, liveable, and contextually grounded climate futures. In doing so, it strengthens anticipatory capacity and collective agency, empowering participants to respond constructively to ecological uncertainty (Milkoreit, 2017).

Critical pedagogy and transformative learning in the 2CG® framework

Another central component of the multi-method approach is its grounding in critical pedagogy, particularly Paulo Freire's conception of education as a process of liberation through dialogue (Freire, 1970). Rather than positioning learners as passive recipients of knowledge, this perspective empowers them to critically reflect on their lived experiences, pose challenging questions, and take action to confront social and environmental injustices. Such collective reflection aligns with the theory of transformative learning where a shift in perspective — often triggered by a disorienting or challenging experience or input — engages learners in deep reflection on their underlying assumptions (Mezirow, 2000; Taylor, 2009). Complementing this, the 2CG® framework

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incorporates double-loop learning, a process in which learners not only address problems but also question and revise the underlying beliefs and values that inform their actions (Argyris & Schön, 1978). This reflective dimension fosters both personal development and adaptive capacity in the face of complex and evolving challenges.

Operationalising transformative climate education

2CG® translates these key principles of transformative education into practice by cultivating inclusive, dialogical learning environments where participants co-construct knowledge, explore agency, and engage with real-world ecological challenges (see Figure 1). Within this framework, climate literacy is understood not simply as the acquisition of factual knowledge, but as the development of values, dispositions, and epistemic flexibility — the ability to navigate and integrate diverse ways of knowing, from scientific evidence to embodied and experiential insight (Oziewicz, 2023).

By deliberately integrating cognitive and affective domains — particularly through storytelling and creative expression — 2CG® fosters imaginative, future-oriented thinking that avoids the paralysis of apocalyptic despair and the pitfalls of naïve optimism. It embodies what Freire (1994) termed *critical hope*: a forward-looking vision rooted in critical awareness of structural inequalities, contextual complexity, and social difference (Bozalek et al., 2014). Creativity and narrative practices are central to this pedagogy. Learners engage with storytelling, climate fiction, and artistic interventions not merely for emotional resonance or engagement, but to reimagine more just and sustainable futures (Rousell & Cutter-Mackenzie-Knowles, 2020).

These practices facilitate deeper understanding of the interdependencies between ecological, social, and behavioural systems. They promote critical reflection, inclusive dialogue, and exploratory learning — key to reshaping worldviews and cultivating the competencies necessary for climate-conscious citizenship (Freire, 1970; Mezirow, 2000).

Narrative as epistemology in the 2CG® framework

Narrative techniques such as polyphonic storytelling, speculative fiction, and arts-based inquiry function within 2CG® not as ancillary tools but as core epistemological practices. They surface tacit cultural knowledge and enable the co-construction of climate understandings that are situated, affective, and socially resonant (Bremer et al., 2017; Lejano et al., 2013). By grounding abstract scientific concepts in lived experience, narrative methods support emotional engagement and ethical reflection — key elements in making climate data meaningful and actionable.

For example, imagining urban traffic from the perspective of a pollution-impacted tree invites learners to embody ecological impacts rather than simply conceptualise them. Such exercises deepen relational understanding and open ethical inquiry into multispecies entanglements. Importantly, 2CG® does not idealise non-human perspectives; rather, it embraces the ethical tensions and contradictions they raise, echoing Haraway's (2016) invitation to "stay with the trouble." Through this ethical attunement and embodied sense-making, 2CG® fosters a form of climate literacy that is not only intellectual but deeply relational.

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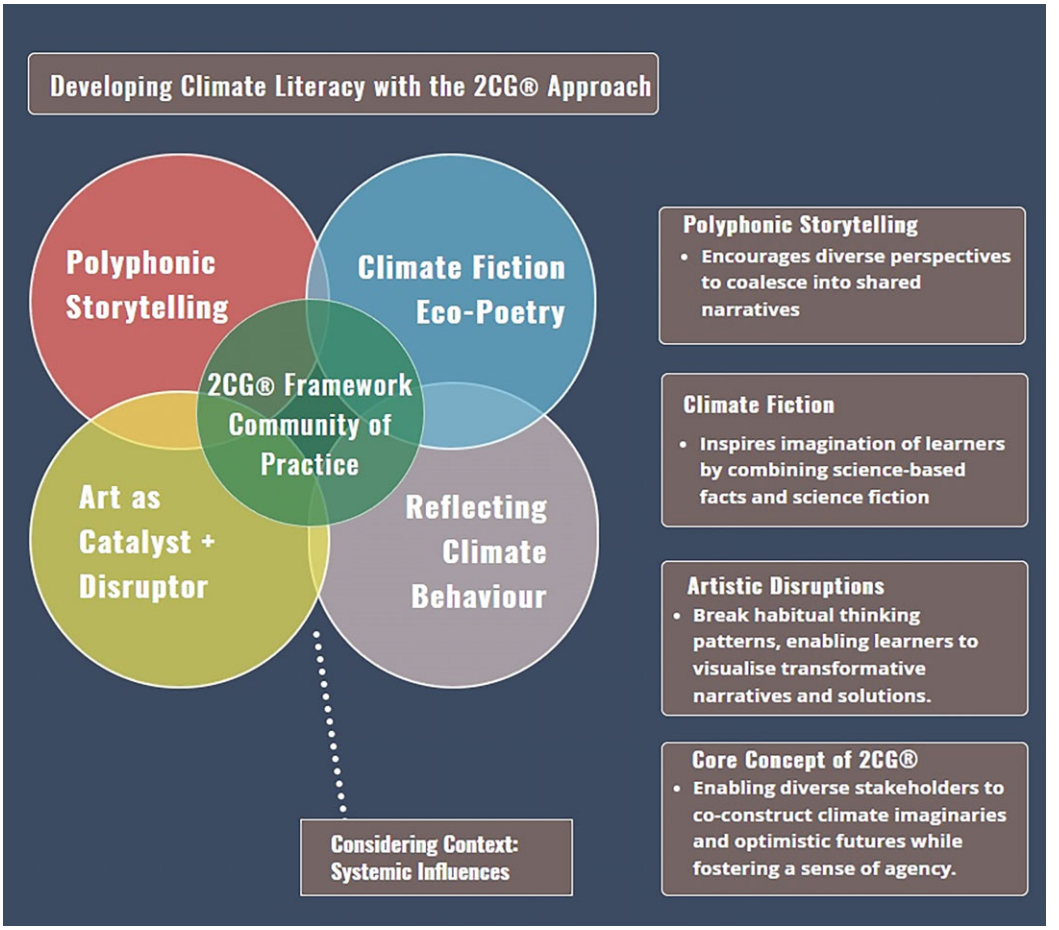


Figure 1. Key elements of the 2CG® framework for cultivating climate literacy.

Applying the 2CG® framework: three case studies in climate literacy

To illustrate the effectiveness of the 2CG® framework, this section presents three case studies demonstrating its application across different educational, cultural, and professional contexts. The case studies reflect the belief that the future is shaped by the stories we tell; our ability to imagine a transition to an ecological civilisation (Oziewicz, 2023); and, most importantly, a shift in behaviour. Each case illustrates how the multi-method approach can help learners challenge entrenched perspectives and how it fosters emotional engagement and disrupts conventional thinking — with the goal to equip learners with the skills to address climate challenges.

Core challenges in case study evaluation and analysis

A core challenge in participatory climate education lies in eliciting and making tacit knowledge explicit (Polanyi, 1966). The deeply held understandings embedded in local, cultural, emotional, and experiential practices play a vital role in shaping how individuals relate to climate change. The 2CG® approach recognises this complexity by integrating storytelling, polyphonic perspectives, and place-based inquiry to bridge diverse ways of knowing.

Across the three 2CG® case studies featured in this article, participants were guided through a reflective and co-creative process. In each case, learners were encouraged to explore their current

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behaviours and emotional responses related to climate-relevant issues, such as neighbourhood wellbeing, urban sustainability, and environmental responsibility. Subsequently, participants re-imagined alternative futures through the co-creation of hopeful and context-sensitive narratives, supported by climate fiction, poetry, and music. These narratives were not only expressive but also constituted data that served to identify cultural frames, emotional drivers, and, to some extent, behavioural patterns. Throughout the process, participants were encouraged to anchor their learning in their specific geographies, which allowed them to engage with climate change not as an abstract global issue, but as one that affects and is affected by local landscapes, communities, and identities. Eliciting and legitimising these situated knowledges required overcoming several methodological and epistemological tensions. One such tension involved navigating the intersection of scientific, artistic, and experiential knowledges.

Ethnographic methodology and thematic analysis of learner engagement

Data were collected through a multi-method ethnographic strategy, including a pre- and post-intervention reflective survey with the Telluz™ diagnostic tool in Case 3; observational and analytic field notes; audio and video recordings of learner presentations; learner-generated artistic outputs; peer feedback forms, and evaluation rubrics. The data was subjected to qualitative thematic analysis (Miles & Huberman, 1994), with particular attention to emergent themes such as emotional engagement, systems thinking, place attachment, and agency. Particular emphasis was placed on fostering the ability in learners to critically perceive social and environmental contradictions — the narrative outputs thus served as both, pedagogical instruments and analytical artifacts, offering insights into how learners processed complexity, articulated change, and envisioned sustainable futures. Relevant analytical insights are shared for each of the three Cases below.

Case study 1: poetic journeys and polyphonic climate stories (workshop series)

Context

Between November 2022 and February 2023, a total of 80 participants aged between 19 and 65 years took part in a series of six environmental education workshops. Participants were professionals based mainly in Western Europe, and represented a broad range of occupational backgrounds, including employees from both public and private sectors, university students, independent consultants, journalists, academic researchers, and design practitioners. This diverse cohort brought interdisciplinary perspectives and varied levels of expertise, enriching the collaborative and reflective learning environment of the workshops. The workshops were conducted both online and in-person and followed a two-phase process aimed at exploring and reshaping place-based climate narratives. Participants were guided to include polyphonic voices, non-human as well as human. Excerpts from climate fiction, poetry and music from indigenous artists, as well as drawings served them as inspirational input. The learning objectives of the workshop aimed to engage participants in a critical and reflective examination of prevailing climate narratives within their professional context and domain. Firstly, they were encouraged to become aware of and critically analyse dominant discourses on climate change, paying attention to their emotional impact, in particular how narratives of fear, guilt, and helplessness shaped their perception and behaviour. Secondly, the workshops fostered the co-creation of alternative, empowering narratives that focused on optimism, gratitude, and courage, aiming to reframe the climate discourse from inevitability to possibility. Finally, participants were invited to reflect on how these two contrasting narratives affected their emotional engagement and motivation to pursue concrete climate action.

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Data analysis

Data from the workshop sessions and participant feedback were distilled into thematic categories, emotional expressions, and reflective insights. Initial codes were created based on direct quotes and grouped inductively. Sample categories included: Emotional Responses (impatience, vulnerability); Behavioural Intentions (reduce plastic, save energy); Metaphors/Symbols (holy water, mountains); and Learning Reflections/Barries and Constraints (importance of art, team co-creation). Themes and patterns were synthesised and triangulated across sessions. Emphasis was placed on participants' shifts in perception and their engagement with environmental and collective themes (see Table 2).

Table 2. Categories of data analysis of 2CG® poetic journey workshop series (2022–2023)

Category	Key insights
Emotional & personal reflections	Emotional responses included impatience (Roman), vulnerability (Betty), and ambivalence (Paul, Lukas). Difficulty in identifying specific environmental issues indicated a need for guidance and prompting.
Behavioural intentions and actions	Examples of eco-friendly behaviour: Avoiding out-of-season fruits; reducing plastic use; buying drinks in glass bottles. Participants emphasised self-regulation, prioritisation, and personal responsibility.
Group-identified environmental issues (especially in session 2)	Plastic reduction in workplace settings; public education and awareness-raising; renewable energy advocacy; water quality protection; biodiversity preservation
Metaphors & artistic representations	Metaphors included: holy water, mountain climbing, trees/DNA, river currents.- Art forms such as poetry and sketches elicited deep reflection.- Example: A tree symbolised balance, nature connection, materialism, and identity.
Reflections on learning experience	Workshops described as "unusual but good" and a "welcome distraction" from routine work.- Art-based methods enabled new environmental perspectives.- Activities created space for awe, wonder, and reflection, especially among data- or tech-oriented participants.
Barriers & constraints	Participants tended toward hypothetical language ("one should . . . ") rather than direct commitments ("I will . . . ").- Awareness of constraints such as economic dependencies and societal structures that complicate individual action.
Emergent themes	1. Co-creation of values: collective reflection fosters potential value shifts.
	2. Disconnect from nature: expressed longing for connection, awe, and presence.
	3. Materialism vs. sustainability: questioning of consumer culture.
	4. Perspective shifts: imagining environmental issues from non-human or alternative viewpoints (e.g., a plant, a child).

Findings from participants' reflections, as well as participatory observation and assessment of the workshop output indicated that shifting from negative to positive climate narratives enabled deeper engagement with climate practices, raised awareness among participants, encouraged critical thinking and reflection, and increased motivation to take concrete action — at least right after the workshop experience. For example, participants reported that they felt *lighter and more inspired* to change their climate habits. These findings align with studies suggesting that hopeful storytelling fosters proactive behaviour (Ojala, 2011). What is more, the workshops revealed underlying climate-related values and behaviours around comfort, social expectations, and commercial interests.

A list of recommendations that resulted from this independent workshop series was incorporated in the Planet Positive 2030 report (Luiken and Havens, 2024). Although the

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workshops succeeded in promoting reflective awareness and a sense of environmental responsibility, participants reported that deeply ingrained consumer habits and structural limitations continued to pose significant challenges. These findings cannot be generalised but highlight the importance of sustained, cross-sectoral, transdisciplinary, creative interventions to support more transformative and enduring climate commitments.

Case study 2: climate heroes — using climate fiction to inspire agency

Context

A hybrid workshop series was conducted as a recurring 1 SWS semester course (1 SWS is equivalent to 15 h according to the European Credit Transfer System) from 2018 to 2022 at a University of Applied Sciences in Austria. The workshops were integrated in the curriculum of Intercultural Business and Management studies for second-year bachelor students. Involving approximately 90 international students aged between 19 and 23 over a period of four years, the course integrated narrative thinking methods, climate fiction, and persuasive communication to foster 21st century literacies, such as critical thinking, creativity, cross-cultural collaboration, and climate literacy. Central to its pedagogy was the use of business and digital storytelling models — particularly the Hero's Journey — as a scaffold for constructing compelling climate narratives. Students were encouraged to challenge assumptions and envision alternative climate futures (see Figure 2), engaging in structured peer feedback to refine their narratives and enhance collaborative learning. The hybrid format enabled diverse, location-independent collaboration, enriching intercultural dialogue.

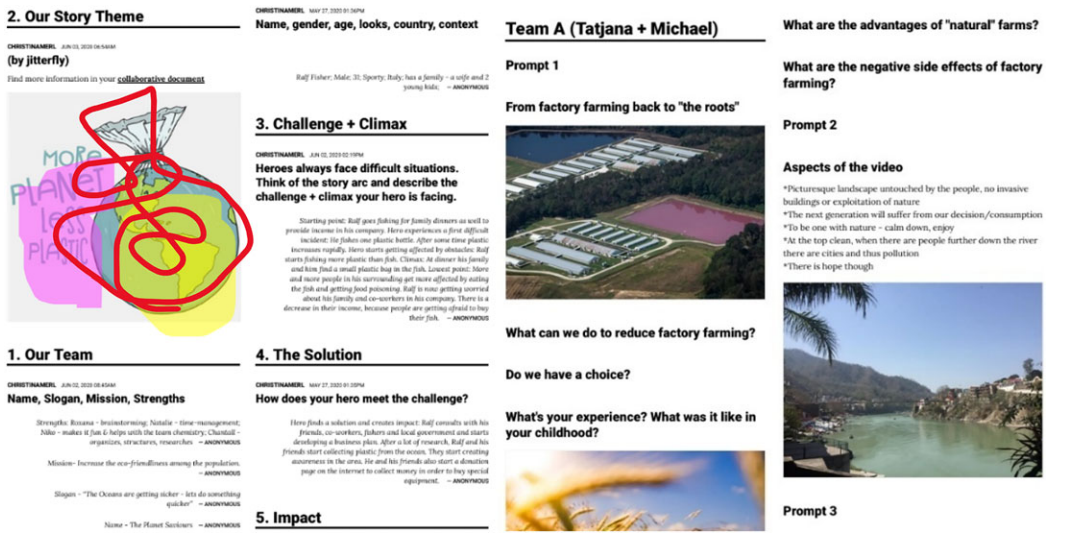


Figure 2. 2CG® — crafting climate stories as a place-based, co-constructive process.

Data analysis

Participatory observation by two facilitators, peer feedback, and assessment of results (see Table 3) indicated that the storytelling process fostered collaborative team spirit, a strong sense of personal agency, and reinforced critical thinking skills. What is more, students reported that they had realised how an effective communicative style — the ability to tell compelling, persuasive climate stories — was essential for future business leaders navigating sustainability challenges.

The course demonstrated the effectiveness of storytelling and climate fiction as a pedagogical tool in business education. Despite its suspension due to budgetary constraints and diverging

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stakeholder expectations after four years, it highlights the potential for integrating storytelling and climate fiction into sustainability and business management curricula. Future iterations could explore adaptations integrating AI, corporate partnerships, or interdisciplinary, cross-university collaborations to sustain its impact.

Table 3. 2CG® assessment categories applied in case 2

Component	Weight (%)	Purpose
Story pitch (1 paragraph)	15	Evaluate initial clarity and direction
Drafted climate story (1 Page)	30	Assessing depth, creativity, and engagement
Story presentation	30	Measuring communication effectiveness; impact of stories
Peer feedback quality	15	Evaluating depth and engagement through peer feedback
Final reflection (written)	10	Encouraging self-reflection and learning growth

Case study 3: neighbourhood stories and data-driven climate narratives

Context

The third case study was a community-based pilot initiative in the framework of the Knowledge Cities World Summit (KCWS) 2023, the 16th edition of the annual global conference hosted by the World Capital Institute. It was aimed at exploring the impact of narrative-based learning in fostering climate awareness and action. The pilot investigated how storytelling, artistic inspiration, and climate fiction could empower citizens to envision and help implement transformative climate futures at neighbourhood level. Utilising the Telluz™ ethical and behavioural scan (a tool-supported anonymous data mining method that is anchored in behavioural science, ethnographic studies, and ethics), climate-related values, perceptions, and self-reported behaviours were collected from residents across European cities, mainly Austria, Germany, and the Netherlands.

Data analysis

Insights from the Telluz™ survey informed the design of two workshops (online synchronous workshop of 4 h with 7 participants; onsite workshop of 2 h with 12 participants) that guided participants in co-creating inclusive and democratic climate narratives incorporating human and non-human perspectives. Workshop participants included educators, public officials, government representatives, and creative consultants. The two-step process combined quantitative data collection and qualitative participatory learning. Through a systematic process of data reduction, key themes, such as community cohesion, local environmental priorities, and emotional responses to climate change, were extracted. These findings were then displayed through categorical mapping and correlation analysis (see Table 4) to identify relationships between individual perceptions and broader neighbourhood concerns (see Table 5; Figure 3). The insights gained informed the design of the workshops, ensuring alignment with participants' lived realities and priorities.

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Table 4. A correlation-based approach using twins was used as a framework for analysing Telluz™ survey data.

Domain	Narrative element ("Twin")	Pro-environmental behaviours reported by participants
1. Shared responsibility (*Verantwortungsbewusstsein*)	Twin 1 – Reciprocal obligation	Participating in community clean-ups
		Sharing sustainability knowledge
		Supporting local environmental initiatives or volunteering
	Twin 2 – Litter	Avoiding littering in public spaces
		Picking up litter even when not one's own
		Advocating for better waste management in one's neighbourhood
2. Togetherness (*Wirgefühl*)	Twin 3 – Social coherence	Engaging in collective climate actions (e.g., tree planting, communal gardening)
		Attending local climate or sustainability forums
		Encouraging others in one's network to take part in eco-friendly practices
3. Wellbeing (*Wohlbefinden*)	Twin 4 – Neighbourhood safety	Advocating for well-lit, pedestrian-friendly environments
		Supporting green infrastructure that improves health and safety
		Participating in local decision-making that enhances liveability
4. Leisure (*Freizeit*)	Twin 5 – Accessible greenspace	Visiting and caring for local parks or nature reserves
		Supporting policies that protect urban green spaces
		Using greenspaces for mental health and social connection, reinforcing their communal value
5. Mobility (*Mobilität*)	Twin 6 – Drive less	Choosing walking, biking, or public transportation over private cars Participating in "bike to work" campaigns
		Advocating for better local mobility infrastructure

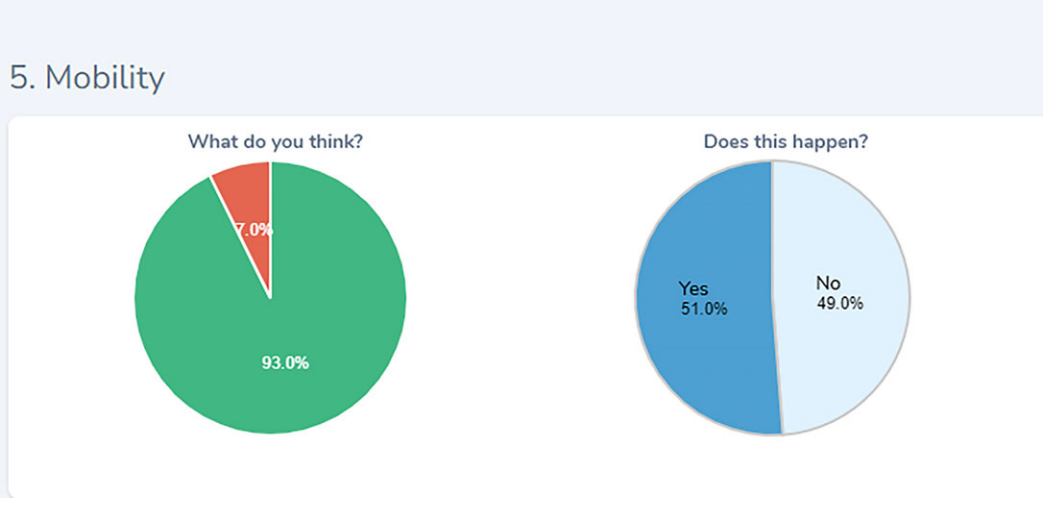


Figure 3. Example from Telluz™ survey data: while 93% of respondents thought that driving less would be beneficiary to the environment in their neighbourhood, only 51% of respondents observed a corresponding behaviour.

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Table 5. Data display matrix 2CG® knowledge cities 2023 (case study 3)

Category	Description
Research question	How can the 2CG® approach foster climate literacy and 21st-century competencies through narrative-based, place-based, and arts-integrated climate education?
Primary data sources	– Pre-workshop anonymous survey (N = 45; Austria, Germany, Switzerland, Netherlands)
	– Notes and templates from (4h) and onsite (2h) workshops
	– Group-authored climate stories (human/non-human views)
Secondary data sources	– Scholarly literature on climate literacy, transformative learning, narrative pedagogy, and place-based education
	– Selected media reports on climate action
	– Youth climate opinion datasets in Western Europe
Researcher's notes	– Observational memos during workshops
	– Reflective notes pre-/post-workshops
	– Coding logs from qualitative analysis
	– Analytic memos highlighting emergent themes (e.g., place attachment, emotional engagement, agency, systems thinking)
Key variables	– Climate literacy of learners (knowledge, emotion, action readiness)
	– Narrative competencies of learners (structure, empathy, persuasion, wording)
	– Perceived neighbourhood responsibility
	– Place attachment and environmental identity
	– Interdisciplinary peer collaboration
Relationships	– Emotional engagement correlates with narrative creativity
	– Place-based storytelling increases perceived local agency
	– Higher climate concern linked to increased narrative impact and intent to act
	– Peer feedback deepens reflection and collaborative quality
Hypothesis	The 2CG® approach enables a shift from relative eco-paralysis and climate disengagement to constructive, action-oriented engagement by combining storytelling, inspirational input from the arts, place-based learning, peer exchange, and emotional reflection.
Relevance and contribution	– Demonstrates potential of arts- and narrative-based education to counteract eco-paralysis and support sustainability mindsets
	– Offers a replicable and scalable model for climate pedagogy
	– Advances integration of 21st-century skills into cross-cultural, interdisciplinary education

According to participants' feedback (see Table 6), the approach was productive and fruitful as it helped them to take on unexpected views of the situation as well as learn about the perspectives and experiences of other team members. Through this reflective co-creation process, they developed an optimistic approach towards climate-related behaviours in their neighbourhoods, showing respect to non-human players, and building overall awareness of how people perceive their neighbourhoods.

In terms of participation and active engagement, the evaluation identified that part-time students preferred the online synchronous setting, while government professionals (at that time) mentioned poor internet connectivity and limited functionalities of their internal video conferencing tool as barriers to engagement. Full-time students who had difficulties to stay

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Table 6. Participant feedback reflects the impact of the 2CG® workshop on participants.

Participant	Feedback
Participant 1	It's hard, but it's helpful to exchange in the team
Participant 2	Together, it's doable
Participant 3	In my work, I only work with figures and data. It's unusual but good to do something else and work with artistic impulses
Participant 4	It's a welcome distraction that helps us strike the balance
Participant 5	We are too narrow-minded (only focus on tech)
Participant 6	It's different to our normal education
Participant 7	It gives us new perspectives
Participant 8	For the first time, I did not just read a poem but think about it
Participant 9	As technicians/engineers, we have a bad reputation — these types of activities can help us broaden our mind and get rid of this negative reputation
Participant 10	These activities help us think outside of the (technical) box
Participant 11	It was easier to work on the video (we got music, lyrics, images, colours . . .) — it is harder to create your own pictures out of a poem where you have only text
Participant 12	For the first time I instantly reflected on a video. That was fun and insightful
Participant 13	It's uncommon but exciting
Participant 14	Usually, I have to do business English only — it's great to go beyond that

focused in online learning environments reported that they had particularly enjoyed the digital storytelling exercises, the lively design and collaborative framework that incorporated climate fiction, poetry, and other inspirational input from the arts. A very small number of participants, approximately 10 percent, dropped out due to technical difficulties or feelings of overwhelm. A lack of self-management and probably also time management skills, or a very low attention span may have had an adverse effect on some students' performance.

Conclusion and outlook

Conclusion

This article has demonstrated that the 2CG® (Content- and Context-Specific Generic Competency Coaching) framework offers a timely, research-informed response to the urgent call for transformative climate education that is emotionally resonant, participatory, and future-oriented. Rooted in a Community of Practice (CoP) model, 2CG® cultivates shared responsibility, reciprocal feedback, and the co-construction of meaning, fostering emotionally safe and relationally rich learning environments. Its iterative, dialogical structure supports deep engagement across disciplinary, cultural, and epistemological boundaries.

Through narrative and artistic inquiry — including polyphonic storytelling, poetic reflection, and multispecies imaginaries — the multi-method approach activates the cognitive, emotional, and ethical dimensions of climate learning. It enables learners to surface tacit knowledge, challenge entrenched paradigms, and rehearse alternative, just futures. As shown across the three case studies presented in this article, participants moved beyond technical understandings of climate change toward a more embodied, situated, and agentic grasp of their role within complex ecological and social systems. In doing so, they addressed symptoms of *eco-paralysis*, cultivating what Freire (1994) termed *critical hope*.

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The 2CG® framework thus functions not only as a pedagogical strategy but as an architecture for civic formation — one that equips learners with future literacies such as systems thinking, empathy, imagination, communication, and ethical reflexivity. Embedding these capabilities into formal and informal curricula is essential not only for navigating climate disruption, but for enabling learners to lead in its regenerative transformation. Particularly within STEM-dominated educational contexts, where emotional, imaginative, and ethical competencies are often undervalued, 2CG® creates space for learners to reimagine themselves not merely as technical experts, but as civic agents and practitioners who actively engage in crafting narratives that include non-human perspectives in ethical and participatory ways.

Moreover, the integration of diagnostic tools such as Telluz™, which illuminate learners' emotional orientations, value frameworks, and perceived agency gaps, enables the tailoring of context-sensitive interventions. These insights support educators in designing responsive, inclusive, and meaningful climate learning experiences that evolve alongside learners' needs.

Ultimately, 2CG® offers a scalable, flexible, and interdisciplinary approach to lifelong climate education. By combining creative practice, critical pedagogy, and competency-based coaching, it supports the development of the metacognitive, emotional, and conversational skills to navigate and address complex climate challenges.

Outlook

Looking ahead, future iterations of the 2CG® framework will incorporate AI-supported personalisation, immersive digital storytelling, and interactive learning platforms to enhance both accessibility and scalability. Such innovations must be developed with ethical intentionality, ensuring they preserve the dialogical, human-centred ethos of the framework. This will be particularly important in fostering hybrid and translocal learning communities, making 2CG® especially valuable for blended and international educational formats.

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