



Ecofiction as Didactic Tool:

Shared Anticipations and Agency Towards Possible and Desirable Futures

Britt Johanne Farstad 

University of Gävle, 80176 Gävle, Sweden

britt.j.farstad@hig.se

Abstract. This paper explores how ecofiction can serve as a didactic tool for cultivating anticipatory thinking, agency, and shared imagination toward sustainable futures in educational contexts. Drawing on the concepts of *anticipation*, *anticipatory governance*, and *pedagogies of hope*, it situates literature and storytelling as performative practices that shape how we envision and act upon uncertain futures. Anticipation, understood as the capacity to imagine and prepare for what may come, has become an increasingly vital framework in times of ecological crisis, technological transformation, and planetary uncertainty. The paper combines theoretical perspectives from anticipatory governance and climate pedagogy (Ahlberg, 2021, 2024; Huoponen, 2023) with ecocritical and narrative inquiry (Bina et al., 2017; Milkoreit, 2017) to examine how educators and learners may employ ecofiction in the classroom. Through examples from Nordic and international contexts and pedagogical initiatives inspired by *EarthEd* (Assadourian, 2017), the paper argues that working with ecofictional narratives can transform climate anxiety into collective reflection and creative agency. Scientific reports on climate changes are equally important: facts are necessary as well as fiction (Cheng et al., 2024; Gartler et al., 2025). The article argues that narrative imagination functions as a form of anticipatory knowledge production that can foster empathy, ethical deliberation, and resilience. The article concludes that by integrating ecofiction into education, combined with scientific research, teachers can nurture future literacy and solidarity, empowering the next generation with knowledge and imagination, to act with hope rather than despair in the face of environmental change.

Keywords: Ecofiction, ecocriticism, climate pedagogy, anticipatory governance, imaginary politics, sustainability education, pedagogies of hope.

1 Introduction

The purpose of this article is to examine how ecofiction combined with climate reports can function as a didactic tool to develop *shared anticipations* – collective forms of

imagining and discussing possible and desirable futures – and to foster agency in learners and educators alike. The analysis draws on theoretical perspectives from anticipatory governance, futures literacy, and ecocritical pedagogy, and emphasises dialogue, ethical formation, and the democratic imagination. In educational research, anticipation has been reframed through the lens of *futures literacy* (UNDP, 2022) and *anticipatory pedagogy* (Huoponen, 2023).

These approaches recognise the future as a pedagogical space, not a fixed endpoint but a field of potentialities that can be explored, narrated, and co-created (Farstad, 2026). Education thus becomes an anticipatory practice that teaches learners to question inherited narratives and to participate in shaping alternative futures. The concept of *anticipation* refers to the human capacity to envision and prepare for what is yet to come. It is not limited to prediction but involves affective, ethical, and imaginative engagement with the future as an open field of possibility. As the OECD (2025) notes, anticipatory governance entails the “organized production and application of knowledge about the future to inform present decisions, policies, and strategies.” Similarly, the World Economic Forum (2024) defines anticipatory governance as a mode of decision-making that enables societies to “anticipate, prepare for, and mitigate crises rather than simply react to them.”

Research indicates that many children and young people experience profound *climate anxiety* and feelings of powerlessness:

A large proportion of children and young people around the world report significant emotional distress and a wide range of painful, complex emotions (sad, afraid, angry, powerless, helpless, guilty, ashamed, despair, hurt, grief, depressed). Similarly, large numbers report experiencing some functional impact, and identify pessimistic beliefs about the future (people have failed to care for the planet; the future is frightening; humanity is doomed; they won't have access to the same opportunities their parents had; things they value will be destroyed; security is threatened; and they are hesitant to have children) (Marks et al., 2021, p. 8).

The study offers a large-scale investigation of climate anxiety in children and young people globally and its relationship to government response. While such emotions are rational responses to global uncertainty, they risk paralysing constructive engagement. Educational systems worldwide are increasingly challenged by the need to prepare young people for a future marked by ecological instability and societal transformation. Climate change, biodiversity loss, and rapid technological shifts have blurred the boundaries between environmental, social, and existential questions. For educators, this creates both a pedagogical and ethical challenge: how can teaching foster not only knowledge about the climate crisis but also emotional resilience, ethical reflection, and collective agency?

Biophobia refers to fear, disgust, or aversion toward nature or non-human organisms. Researchers have found that biophobia is a growing global phenomenon that threatens both human well-being and sustainability. Soga and Evans (2023) findings suggests that in more urbanised and economically developed societies, the prevalence of biophobia is high and potentially increasing. The latest research concludes that

biophobia is a growing trend in many parts of the world. Ironically, this trend has emerged during a time when increasing people's biophilia has become a critical challenge for ensuring the sustainability of the human relationship with nature (Kjellberg Jensen et al., 2025, p. 9).

Consequences of biophobia are that public health is harmed by stress, anxiety and reduced well-being. Moreover, human–nature relationships weaken, reducing conservation support and pro-environmental behaviours. The researchers conclude that unified, interdisciplinary approach is urgently needed to understand and mitigate drivers and consequences of biophobia. Interdisciplinary collaboration is essential to address knowledge gaps and develop effective interventions. Soga and Evans state that given “the wide range of negative consequences of heightened biophobia, much more effort is needed to prevent the progression of this vicious cycle and ultimately to reverse it” (Soga et al., 2023, p. 928).

2 Theoretical frameworks: anticipation, governance, and pedagogies of hope

Pedagogical approaches that focus solely on facts and threats may inadvertently reinforce fear rather than agency (Mosquera & Jylhä, 2022). Against this background, educators and researchers have called for new didactic methods that cultivate *anticipatory capacities* – that is, the ability to imagine, discuss, and act upon possible futures. Ecocriticism has assumed an increasingly significant role within literary studies and literature education, particularly considering the emphasis placed on climate and sustainability issues in the national curriculum frameworks (Gy11 and Gy25). Consequently, teachers are required to develop the competence to teach climate fiction and to integrate ecocritical perspectives into their pedagogical practice.

Ecocriticism concerns the ways in which literature represents nature and the environment, and it encompasses also ecofeminism and theoretical concepts such as anthropocentrism, ecocentrism, and the perception of nature's interconnectedness. Climate fiction frequently explores how individuals and societies confront the climate crisis, offering narrative perspectives that complement scientific knowledge. From a pedagogical standpoint, emphasis is placed on student-centred learning, preparedness for action, and the importance of enabling students to perceive themselves as agents within a world in crisis. Instruction that incorporates climate fiction can provide students with opportunities to envision alternative futures, yet it may also evoke feelings of anxiety or despair, thereby necessitating didactic awareness and sensitivity. Finally, Mosquera & Jylhä (2022) underscores that teaching should aim to strengthen students' relationship with nature. Positive engagement with the natural world is fundamental to the development of ecological literacy, to deal with biophobia, climate anxiety and to foster a more eco centric orientation in the next generations.

Sofia Ahlberg (2021) suggests five distinct categories in *Teaching Literature in Times of Crisis*:

1. Anticipatory competency: the ability to understand and evaluate multiple futures – possible, probable, desirable – and to create one’s own visions for the future.
2. Normative competency: the ability to understand and reflect on the norms and values that underlie one’s actions.
3. Collaborative competency in the service of participatory problem-solving: the ability to learn from others and to understand and respect their needs, perspectives, and actions; this assumes empathy and empathic leadership, the ability to understand, relate to, and be sensitive to others especially when dealing with conflicts in a group.
4. Critical thinking competency: the ability to question norms, practices, and opinions as well as to reflect on one’s own values, perceptions, and actions.
5. Self-awareness and cultural awareness competency: the ability to reflect on one’s own role in the local community and global society, which involves continually evaluating and further motivating one’s actions (Ahlberg, 2021, p. 88).

This theoretical framework intersects with what Huoponen (2023) calls *pedagogies of hope* – approaches that cultivate emotional resilience and collective imagination rather than despair. Such pedagogies emphasise the relational and performative nature of hope, it is produced through shared narratives, dialogical reflection, and action. As Toivonen (2022) notes, people construct agency in relation to climate change through discursive practices that enable them to feel part of collective action, rather than isolated spectators of global catastrophe.

Narrative, in this context, functions as both an epistemic and a methodological tactic. As Ricoeur (1990) has shown, narratives do not merely represent temporal sequences but shape how humans understand temporality, causality, and moral responsibility. Ingold argues in *Imagining for Real: Essays on Creation, Attention and Correspondence* (2022), that imagination is not an escape from reality but a vital, creative force that shapes our engagement with the world. Ingold examines themes of making, sensing, and relating – arguing for a shift from representing reality to living in correspondence with it. Ingold claims that imagination is an active process that participates in the ongoing creation of the world. Ecofictional and speculative narratives extend this capacity by imagining the consequences of ecological and technological transformation. Accordingly, the narratives offer ‘thought experiments’ (Bina et al., 2017) that enable exploration of complex systems, moral dilemmas, and future possibilities.

3 Ecofiction and imagination as educational resources

Ecofiction encompasses a broad range of literary works that explore ecological relationships and environmental crises through imaginative storytelling. From dystopian futures to magical realism, ecofiction invites readers to consider the interconnectedness of humans, nonhumans, and planetary systems. In educational settings, ecofiction can serve as a mediating tool between scientific knowledge and emotional understanding. Ahlberg argues in *Magic - Literature and Climate Pedagogy in a Time of Ecological Crisis* (2024) that literature offers “a space of emotional learning where the imaginative encounter with crisis becomes a rehearsal for agency.” Similarly, Milkoreit (2017) em-

phases that imagination constitutes a political resource in climate discourse, to envision futures is to participate in their creation. Fiction thus becomes a site where knowledge meets ethics.

Within the Nordic context, educators have increasingly turned to narrative and speculative forms to discuss sustainability. Brudin Borg et al. (2024) highlight how *ecocritical methods* can enrich education by foregrounding interdependence, care, and the multispecies dimension of learning. Ecofiction also invites educators to engage students' creativity. In *Teaching Literature in Times of Crisis* (Ahlberg, 2021), classroom practices include writing exercises where pupils imagine letters from future generations or compose alternative endings to climate narratives. These activities transform reading into co-authorship of possible futures, aligning with Freirean ideals of dialogic learning and critical consciousness. Through such practices, ecofiction becomes not merely a vehicle for environmental awareness but a *didactic tool* that integrates emotion, ethics, and imagination. It allows learners to inhabit perspectives beyond their immediate experience – human, animal, or planetary – and to articulate what kind of world they wish to live in.

To illustrate how ecofiction can support anticipatory and hopeful pedagogy, I present selected examples from contemporary practice and literature.

3.1 Ecological imagination

Ahlberg's (2024) work with speculative fiction demonstrates how magical realism can mediate ecological themes without inducing despair. Through texts where natural phenomena are imbued with agency – rivers that speak, trees that remember – students explore relational ontologies that challenge anthropocentrism. In classroom workshops, pupils create their own 'magic climate tales', connecting local landscapes with imagined futures. This approach nurtures what Ahlberg calls *ecological imagination*, the capacity to perceive agency and value in the more-than-human world.

Ecological imagination refers to the capacity to perceive, feel, and think with the more-than-human world, recognising the interconnectedness of ecological systems and the agency of nonhuman beings. Within ecocritical scholarship, this concept has gained increasing prominence as a counterpoint to anthropocentric worldviews that position humans as separate from, or superior to, nature. As Brudin Borg et al. (2024) note, ecological imagination enables learners to inhabit relational ontologies in which humans are embedded within multispecies networks, rather than standing outside them. This shift in perspective is essential for understanding the ethical and existential dimensions of the climate crisis.

In educational contexts, ecological imagination functions as both a cognitive and affective resource. It allows students to move beyond abstract scientific facts and engage emotionally and imaginatively with ecological processes. Ahlberg (2024) argues that literature provides a 'space of emotional learning' where encounters with crisis can become rehearsals for agency. Ecofiction, in particular, offers narrative environments in which students can explore alternative ways of relating to the natural world (Farstad, 2026). Stories in which rivers speak, forests remember, or animals act with intention

invite readers to question dominant assumptions about agency, value, and responsibility. These narrative encounters cultivate what Clark (2015) calls *ecological attunement*, a heightened sensitivity to the complexity and vulnerability of ecological systems.

From a pedagogical standpoint, ecological imagination supports anticipatory and normative competencies by enabling learners to envision futures grounded in ecological reciprocity rather than extraction. When students engage with ecofiction, they are not merely consuming stories; they are practicing ways of perceiving and valuing the world that differ from the logics of growth, domination, and resource exploitation. This imaginative work is crucial for developing what UNESCO (2023) describes as sustainability mindsets – orientations that integrate ecological awareness, ethical reflection, and emotional resilience.

Classroom practices that nurture ecological imagination often involve creative writing, multimodal storytelling, and reflective dialogue. For example, as we have seen, Ahlberg (2021) describes exercises in which students write letters from the perspective of future generations or imagine alternative endings to climate narratives. Such activities encourage learners to inhabit temporal and relational perspectives beyond their immediate experience. They also align with Freirean principles of dialogic learning, where imagination becomes a tool for critical consciousness and collective reflection.

Importantly, ecological imagination also plays a role in mitigating climate anxiety. As Hickman et al. (2021) show, young people often experience feelings of powerlessness in the face of ecological crisis. Engaging imaginatively with the more-than-human world can help transform these emotions into curiosity, empathy, and a sense of relational agency. When students imagine themselves as part of ecological systems – rather than isolated observers – they may experience what Huoponen (2023) calls collective resilience, the shared capacity to act despite uncertainty. In sum, ecological imagination is a foundational component of ecofictional pedagogy. It enables learners to perceive the world through relational, multispecies, and future-oriented lenses. By cultivating ecological imagination, educators help students develop the emotional, ethical, and cognitive capacities needed to navigate the complexities of the Anthropocene. It prepares them not only to understand ecological crises but to imagine and participate in the creation of more sustainable and compassionate futures.

3.2 Imaginary politics

Manjana Milkoreit's concept of *imaginary politics* (2017) highlights the central role of imagination in shaping collective responses to climate change. Her argument begins from a deceptively simple premise: societies do not act on the future as it is, but on the future as it is *imagined*. These imagined futures – whether dystopian, utopian, or somewhere in between – function as cognitive and emotional infrastructures that guide decision-making, motivate action, and delimit what is perceived as possible. In this sense, imagination is not a peripheral cultural phenomenon but a form of political agency. Milkoreit argues that climate change places unprecedented demands on societies' imaginative capacities. Because the climate crisis unfolds across temporal and spatial scales that exceed ordinary human experience, it requires what she calls *cognitive stretching*, the ability to envision futures that are radically different from the present.

This imaginative labour is not merely speculative; it is foundational to anticipatory governance. If governance is to be proactive rather than reactive, it must be grounded in shared imaginaries that allow communities to debate, negotiate, and co-create desirable futures. In educational contexts, this insight has profound implications. When students engage with ecofiction, they are not only interpreting stories – they are participating in the construction of political imaginaries. Fictional narratives offer what Bina et al. (2017) call ‘thought experiments’, enabling learners to explore the ethical, social, and ecological consequences of different pathways. These narratives expand the repertoire of imaginable futures, challenging the dominance of dystopian imaginaries that often saturate climate discourse. While dystopias can raise awareness, they may also reinforce fatalism.

Ecofiction, by contrast, can open space for what Milkoreit terms *imaginative agency*, the capacity to envision futures that are both realistic and desirable. Imaginary politics thus becomes a pedagogical practice. When students read, discuss, and create ecofiction, they rehearse forms of anticipatory deliberation. They learn to articulate values, negotiate conflicts, and imagine collective solutions. This aligns with Ahlberg’s (2021) competencies – particularly anticipatory, normative, and collaborative competencies – which position imagination as a critical skill for navigating uncertainty. Through narrative engagement, students practice the democratic work of imagining futures together, a process that mirrors the deliberative dimensions of anticipatory governance.

Moreover, imaginary politics foregrounds the ethical dimension of climate education. As Ricoeur (1990) argues, narratives shape moral understanding by situating individuals within temporal arcs of responsibility. Ecofiction extends this temporal horizon, inviting learners to consider intergenerational justice, multispecies ethics, and planetary stewardship. In doing so, it challenges anthropocentric assumptions and encourages what Lousley (2014) calls *ecological citizenship*, a form of political subjectivity grounded in relationality and care. Imaginary politics positions ecofiction not merely as a literary genre but as a political and pedagogical resource. It enables educators to cultivate futures literacy, ethical reflection, and collective agency. By engaging with fictional futures, students learn to navigate the emotional and cognitive complexities of the climate crisis, transforming imagination into a tool for resilience and democratic participation. In this way, ecofiction becomes a site where anticipatory governance, narrative inquiry, and climate pedagogy converge – offering learners the imaginative resources needed to act with hope and responsibility in an uncertain world.

3.3 Speculative fiction as role models for real world engineering

Speculative fiction or science fiction has in recent years become interesting for researchers far away from what we consider studies in literature. Fergrani & Song (2020) have found what they call a *six scenario archetypes framework* in their analyses of science fiction novels and films. They propose a new scenario archetypes method generated by extracting a set of archetypal images of the future from a sample of 140 science fiction films set in the future using a grounded theory for analytical procedure. The six archetypes that emerged from the data were named *Growth & Decay*, *Threats & New Hopes*, *Wasteworlds*, *The Powers that Be*, *Disarray*, and *Inversion*. The archetypes in

part overlap with and confirm previous research, and in part are novel. They all involve ‘stresspoint’ critical conditions in the external environment. The researchers explain why the six archetypes, as a foresight framework, is more transformational and nuanced than previously developed scenario archetypes frameworks, making it particularly suited to the current necessity to think the unthinkable more systematically. They argue how the six archetypes framework used in speculative fiction can be used as predetermined images of the future to create domain specific scenarios, making organizations more resilient to critical, disruptive futures.

3.4 EarthEd and transformative learning

The EarthEd project (Assadourian, 2017) provides a compelling framework for re-thinking education in the context of accelerating ecological and societal change. Positioned within the broader movement for sustainability education, *EarthEd* argues that traditional schooling – focused on content mastery, standardisation, and linear progression – fails to equip learners with the competencies needed to navigate a rapidly transforming planet. Instead, *EarthEd* promotes a model of *transformative learning* that integrates ecological literacy, emotional resilience, ethical reflection, and practical skills for living well within planetary boundaries.

At the heart of *EarthEd* is the idea that education must cultivate what UNESCO (2023) calls *sustainability mindsets*, ways of thinking, feeling, and acting that recognise the interconnectedness of social and ecological systems. This requires pedagogical approaches that move beyond the transmission of scientific facts toward experiential, participatory, and narrative-based learning. In this sense, *EarthEd* aligns closely with anticipatory pedagogy and futures literacy. Both frameworks view the future not as a distant endpoint but as a space of possibility that learners can explore, imagine, and co-create. Ecofiction plays a crucial role in this process. When educators pair ecofictional narratives with *EarthEd*-inspired activities – such as fieldwork, systems mapping, or community-based projects – they create opportunities for students to connect global environmental challenges with local, embodied experiences. Fiction provides the imaginative scaffolding, while experiential learning grounds these imaginaries in lived reality. This combination strengthens what Ahlberg (2021) calls anticipatory and normative competencies, the ability to envision multiple futures, evaluate their ethical implications, and articulate personal and collective values.

Transformative learning, as conceptualised by Mezirow (1997) and later expanded by sustainability scholars, involves a shift in perspective that alters how individuals understand themselves and their relationship to the world. *EarthEd* operationalises this through pedagogical practices that encourage learners to question assumptions, engage in dialogue, and reflect critically on their own roles within ecological systems. When students read ecofiction alongside scientific reports, they encounter both the emotional and empirical dimensions of the climate crisis. This dual exposure can catalyse what Freire (2021) describes as *critical hope*: a form of hope grounded not in denial or naïve optimism but in informed, collective action.

Moreover, EarthEd's emphasis on interdisciplinary and experiential learning resonates with the relational and multispecies perspectives emerging in contemporary eco-criticism (see also Brudin Borg et al., 2024). By integrating storytelling, ecological observation, and collaborative problem-solving, educators help students develop what Lousley (2014) terms ecological citizenship: a sense of responsibility and belonging that extends beyond the human community. This shift is essential for fostering agency in the face of climate uncertainty. As Toivonen (2022) notes, agency is constructed through narratives of participation and contribution; EarthEd provides the pedagogical structures through which such narratives can emerge.

In practice, EarthEd-inspired teaching might involve students reading a climate novel, conducting local environmental investigations, and then collaboratively designing scenarios for a sustainable future community. These activities mirror the processes of anticipatory governance by encouraging learners to deliberate, imagine, and plan for uncertain futures. They also cultivate emotional resilience by providing structured opportunities to process ecological emotions – fear, grief, hope – within a supportive learning environment. In sum, EarthEd contributes to a transformative pedagogy that complements and strengthens the use of ecofiction in education. By combining narrative imagination with experiential learning and systems thinking, EarthEd equips learners with the cognitive, emotional, and ethical capacities needed to navigate the complexities of the Anthropocene. It positions education as a site of anticipatory practice, where students not only learn about the future but actively participate in imagining and shaping it.

3.5 The Climate Quartet: A futuristic documentary

Maja Lunde's Climate Quartet – *The History of Bees* (2018), *The End of the Ocean* (2019), *The Last Wild Horses* (2023), and *The Dream of a Tree* (2025) – constitutes one of the most influential Nordic contributions to contemporary ecofiction. Although each novel is a standalone narrative, together they form a coherent literary project that dramatizes ecological vulnerability across centuries, geographies, and species. Lunde's work is particularly valuable in educational contexts because it mobilizes narrative imagination as a form of anticipatory knowledge production. Her novels do not merely depict environmental decline; they stage how individuals and communities perceive, misperceive, respond to, or fail to respond to ecological change. In this sense, the quartet aligns closely with the anticipatory frameworks discussed in recent climate pedagogy and anticipatory governance research (Ahlberg, 2021, 2024; Huoponen, 2023; OECD, 2025; Farstad, 2026).

A hallmark of Lunde's method is her use of interwoven timelines that juxtapose past, present, and speculative futures. This narrative structure mirrors the temporal complexity of climate change itself, where long-term processes intersect with short-term decisions. By placing readers in multiple historical epochs simultaneously, Lunde encourages what Milkoreit (2017) describes as 'future-oriented sensemaking', the cognitive and emotional work of imagining how present actions reverberate across generations. Students encountering these novels often recognize that the characters' dilemmas resemble their own: uncertainty about the future, conflicts between individual desires and

collective responsibility, and the difficulty of acting ethically under conditions of incomplete knowledge.

The first novel foregrounds pollinator decline through three storylines set in 1850s England, 2007 United States, and 2098 China. The narrative demonstrates how ecological collapse emerges gradually through a series of unnoticed or ignored disruptions. For educational purposes, the novel illustrates the fragility of socio-ecological systems and the consequences of assuming stability. It also highlights intergenerational dynamics – parents and children negotiating expectations, fears, and hopes – which resonates with pedagogical discussions of climate anxiety and youth agency (Ahlberg, 2024). The speculative future in which humans must hand-pollinate crops functions as a powerful anticipatory scenario: a narrative thought experiment that invites students to consider the cascading effects of biodiversity loss.

In *The End of the Ocean*, Lunde turns to water as a contested and finite resource. The novel's dual timeline – one contemporary, one set in a drought-stricken mid-21st century – exposes the cultural assumption that water is endlessly available and that oceans can absorb limitless waste. This aligns with research in anticipatory governance emphasizing the need to challenge entrenched imaginaries of abundance (OECD, 2025). The novel's depiction of climate-induced migration further situates environmental change within broader questions of justice, mobility, and human rights. In the classroom, students often respond strongly to the realization that water scarcity is not a distant or abstract threat but a lived reality for millions today. The novel thus becomes a catalyst for discussing how environmental issues intersect with social vulnerability and political responsibility.

The third novel expands the ecological focus to species extinction and rewilding, focusing on Przewalski's horse. By spanning the 1880s, the 1990s, and a near-future Norway, Lunde illustrates how human interventions – both destructive and restorative – shape the fate of species across centuries. The novel complicates simplistic narratives of conservation by showing the ethical tensions between scientific management and ecological autonomy. For educators, this text opens space for discussing biodiversity loss not only as a scientific issue but as a cultural and ethical one. Students can explore how ideas of 'wildness', 'nature', and 'restoration' are historically constructed and politically charged (Bina et al., 2017).

The final novel brings the quartet's themes together through a focus on the seed vault on Svalbard as ecological timekeepers. The seed vault embodies deep time, and Lunde uses it to explore how short-term human priorities undermine long-term planetary stability. The novel's future-oriented storyline underscores the consequences of forgetting ecological knowledge and the importance of cultural memory in sustaining resilience. In pedagogical terms, *The Dream of a Tree* supports what Ahlberg (2024) describes as 'pedagogies of hope', practices that cultivate the capacity to imagine desirable futures rather than merely fear catastrophic ones. The novel's emphasis on intergenerational responsibility aligns with educational goals of fostering future literacy and ethical deliberation (Huoponen, 2023).

Taken together, Lunde's quartet demonstrates how ecofiction can function as a didactic tool for cultivating anticipatory thinking. The novels offer readers a repertoire of possible futures – some dystopian, some cautiously hopeful – that can be collectively

interpreted and debated. This aligns with Bina et al.'s (2017) argument that imaginaries are not passive reflections but active components of governance: they shape what societies consider possible, desirable, or inevitable. In the classroom, Lunde's narratives help students articulate their own anticipations, compare them with scientific projections, and recognize the ethical stakes of environmental decision-making.

Importantly, the quartet does not present climate change as an abstract global phenomenon but as a lived experience embedded in relationships, emotions, and every-day practices. This human-scaled approach can transform climate anxiety into what Huoponen (2023) calls 'constructive concern', a state in which fear becomes a motivator for reflection, dialogue, and action. When paired with scientific reports (for example Cheng et al., 2024; Gartler et al., 2025), the novels allow students to see how fictional anticipations correspond closely with empirical research, reinforcing the idea that imagination and science are complementary modes of understanding the future. Maja Lunde's *Climate Quartet* exemplifies how ecofiction can support anticipatory governance and climate pedagogy by offering emotionally resonant, cognitively rich, and ethically charged narratives. Through its multi-temporal structure and focus on interdependence, scarcity, biodiversity, and memory, the quartet invites readers to engage with environmental change not only as a scientific challenge but as a cultural and moral one. In educational contexts, these novels can foster empathy, resilience, and collective agency – key components of future literacy. When integrated with scientific research and participatory learning practices, Lunde's ecofiction becomes a powerful tool for nurturing the capacity to imagine and enact sustainable futures.

3.6 Anticipation, agency, and collective resilience

One of the most pressing challenges in environmental education, as we have seen, is the emotional burden of the climate crisis. Studies has shown that while fear can motivate awareness, excessive anxiety may hinder learning and lead to disengagement (Hickman et al., 2021). Affective education must therefore balance realism with hope. Ecofiction provides a medium for this balance. As Mosquera & Jylhä (2022) argue, emotions carry normative dimensions, they shape what we consider appropriate responses to climate change. Fictional narratives expand these emotional repertoires, allowing learners to feel, imagine, and process ecological emotions in safe and creative ways. In doing so, they cultivate what Huoponen (2023) calls *collective resilience* – the shared capacity to act despite uncertainty.

Pedagogies of hope are not naïve optimism; they are practices of imagination grounded in critical reflection. Paulo Freire reminds us that hope must be anchored in practice. Freire states in *Pedagogy of hope: reliving pedagogy of the oppressed* (2021) that one "of the tasks of the progressive educator, through a serious, correct political analysis, is to unveil opportunities for hope, no matter what the obstacles may be. After all, without hope there is little we can do" (Freire, 2021, p. 17). When educators use Ecofiction to open spaces for anticipatory dialogue, they invite learners to connect personal emotions with structural analysis and action. This dialogical process transforms anticipation from a cognitive to an ethical and performative competence.

Agency, in this framework, emerges not as individual heroism but as relational participation. Toivonen's (2022) study of climate agency shows that people construct their sense of efficacy through narratives of belonging and contribution. In classrooms, collaborative storytelling and scenario-building mirror this process. Students who collectively imagine a future sustainable community exercise both anticipatory thinking and democratic deliberation. Thus, Ecofictional pedagogy aligns with broader educational aims, fostering democratic participation, ethical literacy, and the capacity to navigate complexity. It moves beyond transmitting environmental facts toward cultivating *futures competence* – the ability to live with and act upon uncertainty.

4 Conclusions

The integration of ecofiction and scientific reports into education is not a neutral act; it is deeply entangled with what Milkoreit (2017) terms the 'imaginary politics' of climate change – the processes through which societies negotiate which futures are conceivable, legitimate, and desirable. Narratives do not merely mirror reality; they actively shape anticipatory frameworks. In this sense, pedagogical engagement with ecofiction involves epistemological and ethical choices: whose stories are foregrounded, and whose futures are imagined? Examples such as Maja Lunde's *Climate Quartet* illustrate this dynamic. By juxtaposing historical, contemporary, and futuristic narratives, Lunde's novels invite readers to trace continuities and ruptures in human–nature relations, thereby situating climate change within a *longue durée* of cultural and ecological transformation. These texts exemplify how fiction can mediate between scientific projections and lived experience, enabling learners to interrogate normative assumptions about progress, responsibility, and intergenerational justice.

Similarly, initiatives like *EarthEd* (Assadourian, 2017) underscore the political dimension of anticipatory education. By embedding sustainability into the very purpose of schooling, *EarthEd* reframes education as a site of transformative praxis rather than mere knowledge transmission. This resonates with OECD's (2025) call for anticipatory innovation, which requires institutional environments that empower educators to experiment with narrative, art, and speculative inquiry. A critical pedagogical approach must therefore encourage students to question narrative frames – dystopian imaginaries that risk reinforcing fatalism, or utopian visions that obscure structural inequalities. Classroom practices such as collaborative scenario-building or rewriting endings to climate narratives, as advocated by Ahlberg (2021), operationalize this critique by positioning learners as co-authors of possible futures. In doing so, education becomes a performative space where imagination functions as a political resource for democratic deliberation and collective agency.

This article has argued that when combined with scientific knowledge, ecofiction constitutes a powerful didactic resource for cultivating anticipatory thinking and agency. Through examples such as Lunde's *Climate Quartet* and pedagogical frameworks like *EarthEd*, we have shown that narrative imagination can transform the future from an abstract temporal horizon into a shared pedagogical space of participation. Engagement with texts that envision both catastrophe and regeneration enable learners to

articulate values, deliberate alternatives, and enact collective responsibility. For educators, this approach entails recognizing uncertainty and creativity as central didactic principles. Practices such as dialogical reading, scenario-writing, and interdisciplinary projects – tested within Nordic teacher education programs – demonstrate that eco-fictional pedagogy may foster resilience, empathy, and constructive engagement. These methods counteract climate anxiety by embedding hope in critical reflection and collaborative action, aligning with Freire's (2021) insistence that hope must be anchored in praxis. Ultimately, ecofictional pedagogy affirms that the future is not predetermined but co-produced through the interplay of scientific knowledge, imagination, and ethical commitment. Education thus emerges as an anticipatory art, a collective storytelling process about the worlds we seek to create and the responsibilities we share in bringing them into being. In this sense, anticipatory competence becomes inseparable from democratic imagination – a prerequisite for sustainable futures.

References

1. Ahlberg, S. (2021). *Teaching literature in times of crisis*. Routledge.
2. Ahlberg, S. (2024). *Magic, literature and climate pedagogy in a time of ecological crisis*. Bloomsbury Academic.
3. Assadourian, E. (2017). Introduction. In E. Assadourian (Ed.), *EarthEd: Rethinking education on a changing planet* (pp. 3-20). Island Press.
4. Bina, O., Mateus, S., Pereira, L., & Caffa, A. (2017). The future imagined: Exploring fiction as a means of reflecting on today's grand societal challenges and tomorrow's options. *Futures*, 86, 166-184. <https://doi.org/10.1016/j.futures.2016.05.009>
5. Brudin Borg, C., Wingård, N., & Bruhn, J. (Eds.). (2024). *Contemporary ecocritical methods*. Lexington Books.
6. Cheng, L., et al. (2025). Record high temperatures in the ocean in 2024. <https://www.researchgate.net/publication/387898247>
7. Clark, T. (2015). *Ecocriticism on the edge: The Anthropocene as a threshold concept*. Bloomsbury Academic.
8. Fahey, L., & Randall, R. M. (1998). *Learning from the future: Competitive foresight scenarios*. Wiley.
9. Farstad, B. J. (2026). Framtidens skola startar på lärarutbildningen: Ekofiktion för hållbar utbildning [The school of the future begins in teacher education: Eco-fiction for sustainable education]. In B. J. Farstad, O. Dahlin, & P. Vesterberg (Eds.), *Lärande som samhällsutmaning i en osäker samtid* [Learning as a societal challenge in an uncertain present] (pp. 293-314). Gävle University Press. https://www.researchgate.net/publication/404770118_Larande_som_samhallsutmaning_i_en_osaker_samtid
10. Fergrani, A., & Song, Z. (2020). The six scenario archetypes framework. *Futures*, 117, 102645. <https://doi.org/10.1016/j.futures.2020.102645>
11. Freire, P. (2021). *Pedagogy of hope: Reliving pedagogy of the oppressed*. Bloomsbury Academic.
12. Fox, A., & Wogowitsch, C. (2021). Green pedagogy. In M. J. Hernández-Serrano (Ed.), *Teacher education in the 21st century*. InTech. <https://doi.org/10.5772/intechopen.91070>

13. Gartler, S., Sheer, J., Meyer, A., et al. (2025). Arctic permafrost thaw risks. *Nature Communications Earth & Environment*. <https://doi.org/10.1038/s43247-024-01883-w>
14. Hernández-Serrano, M. J. (Ed.). (2021). *Teacher education in the 21st century*. InTech.
15. Huoponen, S. (2023). *Pedagogies of hope and agency in climate education*. University of Helsinki.
16. Ingold, T. (2022). *Imagining for real: Essays on creation, attention and correspondence*. Routledge.
17. Irr, C. (2017). Climate fiction in English. *Oxford Research Encyclopedia of Literature*. <https://doi.org/10.1093/acrefore/9780190201098.013.4>
18. Kjellberg Jensen, J., Persson, A. S., & Soga, M. (2025). Toward a unified understanding of people's aversion to nature: Biophobia. *Frontiers in Ecology and the Environment*. <https://doi.org/10.1002/fee.70019>
19. Lousley, C. (2014). Ecocriticism and the politics of representation. In G. Garrard (Ed.), *The Oxford handbook of ecocriticism*. Oxford University Press.
20. Lunde, M. (2017). *The history of bees*. Scribner. Originally published in Norwegian, Bienes historie (2015).
21. Lunde, M. (2020). *The end of the ocean*. Scribner. Originally published in Norwegian, Blå (2017).
22. Lunde, M. (2021). *The last wild horses*. Scribner. Originally published in Norwegian, Przewalskis hest (2019).
23. Lunde, M. (2024). *The dream of a tree*. Scribner. Originally published in Norwegian, Drømmen om et tre (2022).
24. Marks, E., Hickman, C., Pihkala, P., Clayton, S., Lewandowski, E. R., Mayall, E. E., and Wray, B., Mellor, C., van Susteren, L. Young People's Voices on Climate Anxiety, Government Betrayal and Moral Injury: A Global Phenomenon. Available at SSRN: <https://ssrn.com/abstract=3918955> or <http://dx.doi.org/10.2139/ssrn.3918955>
25. Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education*, 74, 5-12.
26. Milkoreit, M. (2017). Imaginary politics. *Elementa: Science of the Anthropocene*, 5, 62. <https://doi.org/10.1525/elementa.249>
27. Mosquera, J., & Jylhä, K. M. (2022). Climate emotions. *International Journal of Philosophical Studies*, 30(3), 357-380. <https://doi.org/10.1080/09672559.2022.2125150>
28. OECD. (2025). *Anticipatory governance*. <https://www.oecd.org/en/topics/anticipatory-governance.html>
29. Ricci, A. (2013). *Forward looking analysis*. European Commission.
30. Ricoeur, P. (1988). *Time and narrative* (Vol. 3). University of Chicago Press.
31. Soga, M., Gaston, K. J., Fukano, Y., & Evans, M. J. (2023). The vicious cycle of biophobia. *Trends in Ecology & Evolution*, 38, 512-520.
32. Toivonen, H. (2022). Climate change agency. *Humanities and Social Sciences Communications*, 9, 102. <https://doi.org/10.1057/s41599-022-01111-w>
33. UNDP. (2022). *New threats to human security in the Anthropocene*.
34. UNESCO. (2023). *Education for sustainable development*. <https://www.unesco.org/en/education-sustainable-development>

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

