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A Post-anthropocentric Creative Mindset through Design Education

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Abstract:

Planet Earth is experiencing profound and irreversible transformations caused by the ongoing climate crisis. Simultaneously, technological advancements often create a misleading belief that these complex issues can be solved with simple tech-fixes. However, to address the root causes of unsustainability, a radical shift in mindset is necessary. It is essential to challenge anthropocentric Euromodern narratives based on binary categories (nature/culture, humans/nonhumans), which have historically perpetuated detachment from the environment. Instead, a more relational understanding of reality is needed - one that positions humans and nonhumans within a more-than-human web of life. This shift necessitates the development of new design methods and frameworks that redefine humanity's relationality with the broader ecosystem. Design, having contributed to unsustainability, must now pivot towards fostering sustainable ways of being. It should promote alternative approaches for understanding the present and envisioning more-than-human futures, encouraging transformative action towards their realization. The authors emphasize the importance of equipping design students with cognitive strategies and practical tools to cultivate a post-anthropocentric creative mindset. To this end, the paper, on the one hand, introduces the thinking-feeling-doing continuum as a conceptual framework for a post-anthropocentric creative process, grounded on imagination, empathy, and anticipation. On the other hand, it proposes a roadmap for design educators, offering suggestions to conceive educational experiences that enable students to unlearn unsustainable practices and adopt an alternative framework for interpreting reality. This roadmap encourages the envisioning of more-than-human futures where multiple species thrive. It also aims to connect educators experimenting with these topics and stimulate discussions about fostering a post-anthropocentric paradigm shift within design education.

Keywords: *Post-anthropocentric creativity; more-than-Human futures; posthuman; imagination; empathy; anticipation*

Introduction

The conditions of life on Earth are going through rapid and profound changes (Moore, 2016) caused by the anthropocentric dominance, which is impacting the planet in ways that jeopardize its capacity to support both humans and other species (Barnosky et al., 2012). Today, human activity has become a global force, representing the major driver of most climatic, environmental and ecological changes (Lewis & Maslin, 2015), which gave rise to the



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informally defined era of the Anthropocene (Randall, 2023). Indeed, over the past few thousand years, the human population, empowered by great technological prowess, has largely grown and spread across the globe, impacting the habitats and exerting pressure on other forms of planetary life (Burchett, 2013). There is evidence that similarly impactful planetary-scale transitions have occurred in the biosphere before; nevertheless, human activities are now forcing a new transition that will irreversibly bring Earth into a state that humanity has never experienced before (Barnosky et al., 2012). Tackling the roots of this environmental crisis means questioning the deeply ingrained binary Cartesian constructs that have reinforced humanity's sense of detachment from the more-than-human world.

Recognizing the roots of the crisis

Although awareness of the ongoing environmental crisis is increasing, fully acknowledging and acting upon such an emergency remains difficult due to the constructs, concepts, and narratives we have inherited from the past, which we use to make sense of an increasingly volatile and uncertain global present (Moore, 2016). Cartesian categories - that advocate the separation of mind from body and nature from culture - have deeply forged Western understandings of reality and contributed to the present sense of detachment from our surrounding environment (Leitão, 2018). The binary distinction between the human and the non-human is the foundation of European thought which strives to define what is human by what it is not (Braidotti, 2019b) thereby highlighting an intrinsic divide between us and the *more-than-human world* (Abram, 1996).

In this scenario, it becomes paramount to recognize that the very thinking – and, thus, the related ways of doing - that contributed to today's global turmoil and environmental crisis are unlikely to solve it (Moore, 2016). There is, indeed, a strong connection between the concept of the Anthropocene and the ethical stance of anthropocentrism which frames humans as the only beings that possess intrinsic value, while considering all other nonhuman entities solely from a utilitarian and instrumental perspective (Ferrante & Sartori, 2016; Goralnik & Nelson, 2012). Due to their underlying dualism, which hierarchically separates humans and nonhumans, anthropocentric categories obscure the interconnectedness of the 'web of life' and prevent us from embracing a more holistic understanding of our entangled existence on Earth (Hupkes & Hedman, 2022). Unsurprisingly, anthropocentrism is often central to discourses on environmental ethics which pose fundamental questions on our consideration of nature, the value we recognize in it and the way these values are reflected in our actions (Goralnik & Nelson, 2012). Thus, it is safe to say that such a binary conception of reality – that enforces dualistic oppositions (Braidotti, 2019b) - has caused harmful consequences on our ways of relating to the more-than-human natural world and its nonhuman inhabitants as well as has affected our ability to imagine alternative futures in which humans and nonhumans live together harmoniously.

As a matter of fact, the shift towards sustainable futures builds upon a deep understanding of human-nature entanglements and a commitment to caring for them (Veselova, 2019). In this regard, several theories have recently developed and gained momentum to condemn anthropocentrism as a type of human-centeredness that fails to account for human interdependence with the ecosystem and influence upon it (Burchett, 2013). If, on the one hand, these schools of thought - and related concepts – aim to lay the theoretical groundwork for a necessary post-anthropocentric paradigm shift (Ferrando, 2016), on the other hand, it is evermore clear that there is urgent need for operational frameworks to realize this shift by overcoming human-centeredness and recognizing our embeddedness within the ecosystem (Camrass, 2020).

What do design and design education have to do with this?

These theoretical discourses have direct implications on the discipline of design, as it is widely renowned to be an anthropocentric activity whose human-centered approaches have failed to meet the interests of all actors - both human and nonhuman (Quadflieg, 2021). As introduced above, it is timely to acknowledge that human beings coexist with nonhuman entities within the intricacies of the more-than-human *web of life* (Bridle, 2023); thus, new design methods and frameworks become necessary to reconsider our relational ways of being with otherness (Forlano, 2017; Tarcan et al., 2022).

As noted by Tironi et al. (2023), besides investigating and enabling new sustainable ways of existing within the world, design practice should now focus on nurturing alternative approaches of making sense of the present and envisioning more-than-human futures (Tironi et al., 2023). Therefore, in this discourse, it is essential for designers to reflect on what imagining more-than-human futures means, and, thereafter, to engage in collaborative discussions that inspire transformation towards those futures (Canina et al., 2023). Envisioning futures in which humans and nonhumans live as peers requires design discipline to see beyond human-centered limitations adopting a pluralistic and multispecies lens that also accounts for nonhuman needs (Neuhoff et al., 2023).

This more-than-human centered shift in perspective must be coupled with another important deconstruction that can unleash the full potential of design as enabler of radical change: that is the dismantling of its modern, Western and Eurocentric premises introduced above. Indeed, design is at the same time the result and the perpetuator of the Euromodern norms and values which prevent us from thinking of the world in its complexity and relationality

(Tlostanova, 2021). Therefore, to make design the enabler of new forms of *being with* and *in* the world, we should try to welcome pluriversal epistemologies that can enable radically alternative worldviews (Leitão, 2018, 2023) of more-than-human coexistence. As a matter of fact, to envision truly alternative futures – in which, hopefully, multiple species can thrive - it is necessary to uncover and question the underlying assumptions and norms upon which those future visions are built (Lindström et al., 2021). Because these foundational assumptions reflect our internal priorities and in turn impact the external world, we need to critically question the implicit worldviews, values, and beliefs that shape our designs (Engholm, 2023).

Essentially, what we need is “*a post-Eurocentric and then a post-anthropocentric understanding of design – and one that functions pluralistically and above all also future-oriented*” (Quadflieg, 2021, p. 189) to turn design from being the vehicle of unsustainability to being a tool for *futureing* (Fry, 2020).

Design education can play a crucial role in this endeavor, despite its widely acknowledged limitations. There is, in fact, an open debate among scholars regarding design education struggling to keep pace with the demands of the 21st century (Meyer & Norman, 2020). Even though it is nowadays evermore confronted with an array of increasingly critical questions stemming from the ecological emergency (Mortati, 2022), current design education system appears to not always equip students to tackle these challenges effectively (Meyer e Norman, 2020).

Experts argue that educating the next generation of designers should entail teaching them to be socially and environmentally responsible and providing them with the necessary abilities to envision and actualize more sustainable and equitable futures (Canina et al., 2021; Neuhoff et al., 2023). Design, indeed, allows to imaginatively inhabit the future (Taylor, 2019, p. 51) and, therefore, it should be seen as a political action responsible of shaping collective imaginaries (Mazè, 2019). As pointed out by Dunne & Raby (2013), by leveraging creative imagination, design can be a means of speculating how things *could be*: it can enable new perspectives and spark the conversation and reflection about alternative ways of being and our relationship to reality. On a similar note, in the introductory chapter of their book “*Design in Crisis. New Worlds, Philosophies and Practices*” Nocek and Fry (2021) state that design is ontological; thus, it must not limit itself to reducing its side effects: rather “*it must envision the possibility of designing new conditions for being human*” (Nocek & Fry, 2021, p. 3). Nevertheless, the way in which design is still taught and bequeathed does not necessarily reflect this broader ontological vision and mission of design. In fact, to a large extent, design education has reflected the unsustainable *status quo* in which it is embedded, often failing to equip students with the knowledge and agency to critically challenge it and open new possibilities (Boehnert & Dewberry, 2023).

Hence, it is essential to create and propose new educational experiences that provide young designers with the opportunity to develop a creative, critical and post-anthropocentric mindset necessary to challenge the dualistic conception of reality by zooming out to acknowledge the existing - yet hidden – human-nonhuman entanglements. These new educational experiences will also be crucial in encouraging design students to leverage design as a means to restore our lost connection with the planet and its nonhuman inhabitants.

Therefore, drawing on the reflections presented above, the paper seeks to pose the critical question: **how might we – as design educators – create new (un)learning experiences to help design students nurture a post-anthropocentric creative mindset and envision radically alternative futures of more-than-human coexistence? What aspects should we take into consideration?**

The following sections will attempt to provide an exploratory answer to this question. To do so, they will first outline what a post-anthropocentric creative mindset could be and what abilities should be developed to nurture such a mindset. Second, they will inquire whether and how this post-anthropocentric creative mindset could be nurtured through specifically designed (un)learning experiences.

Towards a post-anthropocentric creative mindset to envision more-than-human futures

Research shows that to enable an equitable transition towards sustainable futures, a new skillset that prioritizes imaginative and creative thinking is necessary (WEF, 2020; IDG Report, 2024). The ability to creatively envision alternative scenarios helps individuals develop greater resilience, enabling them to adapt more effectively to the ever-changing world (Glăveanu, 2018). As a matter of fact, creativity is recognized as an essential ability that not only can enable people to navigate the relentless pace of change and today’s high levels of uncertainty (Glăveanu & Kaufman, 2019), but also to manage the complexity of the multiple possible futures ahead (Canina et al., 2021) and, for this reason, it plays a pivotal role in inspiring the critical actions needed to move towards sustainable futures (Creative Denmark, 2023). Moreover, interestingly enough, creativity - together with empathy and future-orientation - is enumerated among those internal abilities that, if activated, can empower individuals to facilitate the paradigm shift needed for making visions of sustainable futures actionable (Wamsler et al., 2021).

In the face of the contemporary environmental crisis, therefore, creativity can play a crucial role in paving the way for a post-anthropocentric era (Canina et al., 2023) in which humans are decentralized subjects that reappraise the connection with more-than-human world they belong to and act with care towards all beings. Since creativity is recognized as a fluid concept that evolves over time following socio-cultural contextual transformations (Runco, 2017), the ongoing debates on post-anthropocentrism, posthumanism and more-than-human approaches in design are likely to reshape its scope and definition.

A posthuman lens to reframe creativity

Posthuman theories and their associated concepts can significantly contribute to the definition of a new paradigm of creativity and creative process. Chappell (2022) argues that reframing creativity through a posthuman lens is crucial to decenter humans, addressing climate-related issues and allowing us to fully adapt to those changes. Indeed, according to a posthuman conception of reality, human and more-than-human beings are interdependent and interconnected by relational ties that can be grasped and acknowledged through creativity (Haraway, 2019 as cited by Harris & Holman Jones, 2022). As humans, we continuously relate with the nonhuman world (Chappell, 2018): we are in a constant state of being *in-relation-with* otherness. Indeed, as highlighted in Haraway's work, *relationality* refers to our capacity to transform and be transformed by what surrounds us (Harris & Holman Jones, 2022) - similar to Brian Massumi's notion of *affect* (Shouse, 2005). This concept urges us to recognize that we are relationally and affectively interconnected with and interdependent on the more-than-human. We must acknowledge our belonging to it and its power to shape us. In doing so, we break through the established borders of thought and feeling and reassess our position within the 'web of life' (Bridle, 2023). Following these considerations, a posthuman redefinition of creativity could be key in providing designers with an alternative framework to both perceive human embeddedness within the surrounding ecosystem and act responsibly, accounting for more-than-human interdependence. We believe that this new understanding of creativity could, in fact, facilitate a post-anthropocentric shift in the mindset of designers, which is essential to stimulate alternative visions of futures for the planet and all its human and nonhuman inhabitants. Such a post-anthropocentric shift in mindset would require designers to design 'for' all forms of life employing a process of unlearning binaries. Indeed, post-anthropocentrism – as a philosophical stance - questions human exceptionalism and species hierarchy, favoring an ecological and equitable conception of life (*zoe*) as a quality that reconnects all forms of human and nonhuman existence (Braidotti, 2019a). In this regard, the notion of *zoe-centered egalitarianism* stands out as a foundational concept to decenter the human and recalibrate the focus on more-than-human entanglements where all forms of life share the same value (Braidotti, 2013). In addition to this, another essential notion - seen as the condition for a posthuman interpretation of reality - is the *naturecultures continuum* which blurs the boundaries between the Western separation of culture from nature (Braidotti, 2013), namely the human and the more-than-human natural world. Therefore, in the process of becoming post-anthropocentric, in the journey of acknowledging human-nonhuman entanglements, designers need to embrace and attune themselves to the concepts of *relationality*, *zoe-centered egalitarianism* and *naturecultures continuum* and explore ways and opportunities to translate them in their creative practices. In this perspective, *thinking*, *feeling*, and *doing* are interwoven creative steps of cognitive recognition, emotional sensing and practical action that reconnect the human and more-than-human worlds.

The 'thinking-feeling-doing continuum' as post-anthropocentric creative process

In her book "Staying with the Trouble. Making Kin in the Chthulucene" (2016) Donna Haraway stresses that we need to fight the "thoughtlessness" behind which we have been hiding ourselves until now, failing to recognize our response-ability in the current ecological emergency and in emphasizing a sense of detachment from the surroundings: "think we must; we must think!" (p. 36). In Haraway's perspective, *thinking* implies choosing whether to actively care for the world around us or to contribute to the ongoing ecological destruction (Wolfstone, 2019). Building on this, *thinking* appears to be therefore essential for a post-anthropocentric type of creative action focused on "doing good" for all forms of life (*zoe*, as previously introduced), practicing care for the more-than-human world and bringing forth its "right to matter". We need to move beyond the belief that humans and nonhumans are neatly separated: we need to embrace a way of thinking that not only contrasts our tendency to counterpose ourselves to the natural world, but also that welcomes the idea of a more-than-human world made up of human-nonhuman entanglements and interrelations (Bridle, 2023). To nurture this new way of thinking and grasp that our existence depends on the existence of other beings – that life depends on life - it is essential for us to be able to *feel* a deep sensory and emotional connection to otherness. By noticing how encounters with otherness affect us, we recognize that the more-than-human world is actually connected to us and that we depend on it. *Feeling* leads to reflection

(*thinking*) and reflection leads to understanding that our relationality to otherness reshapes our *umwelt*¹(Collins Dictionary, n.d.), namely our way of knowing and perceiving the world (Bridle, 2023).

Ways of *thinking, feeling* - and, thus, living - in relation with the more-than-human plurality might catalyze a new type of creativity that has planetary scope (Harris & Rousell, 2022) and that overcomes anthropocentric boundaries. A *thinking-feeling-doing continuum* (fig. 1) can, therefore, synthesize three interchangeable and interconnected stages of a post-anthropocentric creative process. By scraping through the existing, though scarce, literature on the topic of post-anthropocentric/posthuman creativity, the authors were able to identify three key creative abilities that can correspond to the three stages of the *thinking-feeling-doing continuum*. Specifically, (i) **imagination**, connected to the *thinking* stage, is the ability to cross divides and mentally travel in both past and future times (Gotlieb et al., 2019); (ii) **empathy**, connected to the *feeling* stage, is the ability to notice, comprehend and care about the experiences and perspectives of others – either humans and nonhumans (Young et al., 2018); ultimately, **anticipation**, connected to the *doing* stage, is the ability to turn a future-oriented attitude into concrete action (Poli, 2019). We argue that, when activated and nurtured with the purpose of challenging human-centeredness, these abilities could enable designers to craft new narratives and envision scenarios in which multiple species coexist harmoniously. Indeed, visions of more-than-human futures must be built on narratives that overcome traditional storylines, question the exceptionalism of the (human) “modern hero” and welcome a wider array of nonhuman characters. Research and experiments show that the act of imagining stories in which the nonhuman characters are given agency can foster the development of a post-anthropocentric mindset (Talgorn & Ullerup, 2023), essential to envision radically different futures of more-than-human coexistence. In fact, worlds can be made and re-made through stories and creative storytelling (D. Harris & Holman Jones, 2022). Equipped with a deeper awareness of their role in the environmental crisis as well as of the need to move beyond human-centered thinking, designers can employ imagination to challenge anthropocentric narratives. With these alternative narratives, they can inspire greater empathy for the planet and its nonhuman inhabitants, while also harnessing their creative and political agency to encourage more mindful, sustainable behaviors.

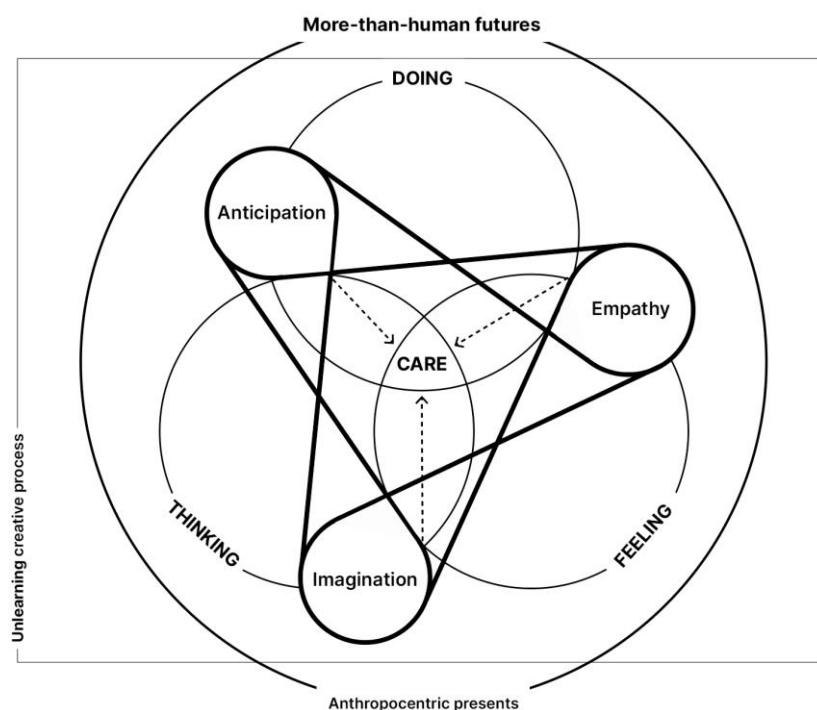


Figure 1. The image synthesizes visually the thinking-feeling-doing continuum and connected creative abilities, imagination, empathy and anticipation. Image made by Eva Monestier (2025)

Imagination, empathy, and anticipation as key abilities to envision more-than-human futures

As Bridle (2023) states “it is time for re-imaginings” (p.17) to challenge human exceptionalism. In the discourse on a new post-anthropocentric type of creativity, therefore, **imagination** is central: it acts as a core cognitive force for creativity and anticipation, enabling us to represent the surrounding world by envisioning alternative scenarios (Finn

¹ **Umwelt.** Noun (*biology, psychology*) the environmental factors, collectively, that are capable of affecting the behaviour of an animal or individual. From German *Umwelt*: environment. <https://www.collinsdictionary.com/dictionary/english/umwelt>

et al., 2023) and to depict images of things not currently present to our senses (Gotlieb et al., 2019; Milkoreit, 2017). Imagination allows us to mentally explore different perspectives and to connect human and non-human realms (Jensen, 2016). It represents the dynamic, border-crossing capacity that fuels the creative process (Gotlieb et al., 2019), enabling designers to see the world from the points of view of other beings by mentally embodying their experiences and imagining their stories. As noted by Finn & Wyle (2021), indeed, imagination allows us to: (i) simulate and anticipate possible futures; (ii) experience the lives of others, which in turn deepens our empathy and our ability to consider the consequences of our actions on others; and ultimately (iii) explore novelty and impossibility, transcending the limits of human knowledge, and challenging existing paradigms. Imagination – as the cognitive ignition of more-than-human narratives and the core of the *thinking* stage - is, therefore, strictly linked to empathy and anticipation. The act of imagining stories of multispecies balance can inspire an enhanced sense of empathic connection with the more-than-human world, shedding light on the powerful relations that bind all things together (Le Guin, 1986). As a matter of fact, speculative fabulation - as a process of creating new myths or fictions of alternative worlds – allows us to *stay with the trouble* of multispecies worldings in which natures, cultures, subjects, and objects are strictly intertwined (Haraway, 2016, p.13). For instance, research has shown that stimulating interspecies empathy through the use of narratives has often resulted in positive behaviours and actions towards nonhuman animals (Małecki et al., 2019). Therefore, to *feel* our entanglement with and responsibility towards the more-than-human world and uphold our relationality with it, **empathy** is essential. As an imaginative ability to understand otherness through feeling (Jensen, 2016), empathy is the driver of the *feeling* stage and can enable us not only to comprehend what others feel (*cognitive empathy*) or to produce an emotional response to it (*affective empathy*), but also to find the motivation to take action and modify the course of events, improving the situation or relieving pain (*motivational empathy* or *compassion*) (Metcalfe, 2023; Talgorn & Ullerup, 2023). Hence, empathy should be seen as a transversal ability that fosters the perception, understanding, and attention to the experiences and perspectives of other living beings (Tam, 2013; Young et al., 2018). That is why it is considered an essential faculty to re-acquaint our lost relationship with nature and shape more equitable futures (Blythe et al., 2021). Therefore, a post-anthropocentric understanding of designers' creative action should aim at nurturing empathy to bridge human and more-than-human worlds through *feeling*.

As pointed out by Nanson (2021), we could leverage imagination and empathy to take the future seriously and start using stories to motivate action (Nanson, 2021) and improve conditions of life on this planet. This awareness leads to the *doing* stage of a post-anthropocentric creative process which has **anticipation** at its core. Anticipation is the ability to translate visions of possible futures into present-day action (Poli, 2019). Indeed, anticipation is not merely about imagining possible futures for the sake of escaping an uncomfortable present. Instead, it involves incorporating an element of action in the present based on imagined possible futures (Corazza, 2019) with the aim to transform negative situations into preferable ones. However, as noted by Sanchez et al. (2024), a challenge emerges when those visions of possible futures unconsciously mirror embedded assumptions and, therefore, reiterate dualistic conceptions of reality. Envisioning radically alternative futures demands that we move beyond blind techno-optimism and welcome contrasting feelings such as grief and hope: the former to accept the undoing of underlying (Euromodern) norms and the latter to believe in the possibility of change for the better (Lindström et al., 2024). On a similar note, Tironi et al. (2023) argue that the progress-centered conception of the future encouraged by modernity has led us to neglect alternative ways of relating to the world and is preventing us from envisioning other possibilities of how the world could be lived in, learned from, and understood. Building visions of more-than-human futures where humans thrive with other nonhuman species is not an easy endeavour because it requires us to “*stay with the trouble*” of the present and take responsibility for the contemporary ecological crisis. Borrowing Donna Haraway's words:

“In urgent times, many of us are tempted to address trouble in terms of making an imagined future safe, of stopping something from happening that looms in the future, of clearing away the present and the past in order to make futures for coming generations. Staying with the trouble does not require such a relationship to times called the future. In fact, staying with the trouble requires learning to be truly present, not as a vanishing pivot between awful or edenic pasts and apocalyptic or salvific futures, but as mortal critters entwined in myriad unfinished configurations of places, times, matters, meanings.” (Haraway, 2016, p. 1)

Puig de la Bellacasa (2017) argues that to care for the more-than-human world involves a great range of doings necessary to create, maintain, and sustain life, while preserving its richness and diversity (Puig de la Bellacasa, 2017). This clearly connects **care** to action (*doing*): practicing care means acting to support and enable life. It is therefore imperative that we begin to prioritize the well-being of the planet as a whole and take responsible, *care-full* action to secure possible futures. As Bridle (2023) synthesizes clearly:

“Given that we humans and the things we make are inextricably entangled with the more-than-human world, and given that rethinking our relationship with that world demands that we acknowledge its existence and agency, we must think a little about

the form that relationship might take. Part of that relationship is simply care: a constant attentiveness to the meaning and affect of our entanglement.” (Bridle, 2023, p. 19)

Therefore, the authors propose that a post-anthropocentric creative mindset could be developed by navigating a *thinking-feeling-doing continuum* where the boundaries between the three domains are intentionally blurred by renewed capacities for imagination, empathy - understood here as affective connection with the more-than-human world - and anticipation of multispecies futures.

Building on these insights, the following section explores their practical implementation into meaningful (un)learning experiences that help designers nurture a post-anthropocentric creative mindset before engaging in the design process.

A roadmap to design post-anthropocentric educational creative experiences

Drawing on the reflections presented above, the authors see an urgent need for transformative learning experiences that equip design students with both cognitive strategies and practical tools to develop and nurture a post-anthropocentric creative mindset grounded on the *thinking-feeling-doing continuum*. These experiences should aim to introduce design students to pivotal posthuman notions - such as *relationality*, *zoe-centered egalitarianism* and *naturecultures continuum* - while fostering the essential creative abilities of imagination, empathy and anticipation to navigate the complexities of the contemporary crisis. In this context, the *roadmap* can be seen as an operational cartographic tool for design educators to accompany their students through a process of *inner transformation* (Wamsler et al. 2021) that can allow them to defy existing human-centered paradigms and worldviews. The goal is to enable students to “unlearn unsustainability” (Boehnert & Dewberry, 2023) by adopting a post-anthropocentric creative mindset that can provide a different framing to interpret reality and foster the ability to envision thriving, more-than-human futures.

Rather than prescribing specific tools or providing a rigid, step-by-step guide, the roadmap is designed to inspire and empower design educators to make informed decisions and shape learning experiences that align with their expertise and unique educational objectives. It represents a first attempt to gather general guidelines for crafting learning modules – rather than entire courses - that prioritize the cultivation of imaginative, empathetic and anticipatory foundational skills mentioned previously. Educators are encouraged to adapt the roadmap to their own contexts, applying diverse tools, techniques, and methodologies to facilitate this shift. Therefore, the roadmap can be seen as a living, personal tool that each educator shapes and enriches through their own backgrounds, reflections, and considerations.

Moreover, the roadmap aspires to foster a collaborative community of educators who are already pioneering these approaches in their courses. By sparking meaningful dialogue about the necessity of a post-anthropocentric paradigm shift, this initiative aims to catalyse innovation in design education and chart a path toward empowering students as agents of transformative change in an interconnected, multispecies world.

Thought to bridge theory and practice, the roadmap was built employing the *constructive alignment (CA)* framework proposed by Biggs to design teaching units (2003; 2014). The CA framework is based on the constructivist perspective that learners are not simply given knowledge; rather, they are given *the possibility to construct their own meanings* through teaching/learning activities (Biggs, 2003; 2014). It also emphasizes that effective teaching design begins with clearly defining what learners are expected to be able to *do* with the knowledge they acquire in specific units (Biggs, 2014). Indeed, according to this theory, educators should define a set of clear Intended Learning Outcomes (ILOs) before designing or selecting classroom learning activities for a teaching unit (Biggs, 2003; Sancassani et al., 2019). To be functional, ILOs must outline: (i) an action - framed using specific action verbs, (ii) a topic - that refers to the subject matter, and (iii) a context or scope of action (Sancassani et al., 2019).

Accordingly, we will refer to the first two steps of the CA framework to guide the development of our roadmap. First, we will identify concrete and measurable ILOs, then suggest possible ways to achieve them by connecting each ILO to existing learning activities, methods and techniques that are currently being experimented in various teaching environments. This leaves room for educators to craft learning activities that reflect existing best practices while adding their unique perspective and teaching approach.

Defining Intended Learning Outcomes

After engaging in these (un)learning experiences - understood as opportunities for students to know, feel, and experiment with more-than-human kinship - students should be able to:

1. **Problematize** (i.e. critically examine and challenge) **the normative euro-anthropocentric ways of being and doing** - thus, behaving and designing – by engaging with and getting to know alternative epistemologies and ways of relating with the more-than-human world (Nocek & Fry, 2021; Quadflieg, 2021; Leitão, 2018; Tironi et al., 2023);
2. **Develop an empathetic understanding of human-nonhuman interconnectedness** through experiential learning, i.e. *understand-through-feeling* (Jensen, 2016);
3. **Envision more-than-human futures** through multispecies worlding (Haraway, 2016; Hillgren et al., 2020).

Designing teaching/learning activities

To ensure the achievement of each of these ILOs, educators should carefully select or design relevant learning activities, methods and/or techniques. How can this be accomplished? The following are general suggestions for educators to design educational experiences that allow students to achieve the ILOs introduced above. These suggestions emerged from an analysis of existing literature, best practices and pedagogical experiments in the field of more-than-human design and were triangulated with data coming from semi-structured interviews with experts.

Tip 1: Blurring disciplinary boundaries – ILO1

First, educators could integrate inter- and transdisciplinary approaches into theoretical lectures, enabling students to get acquainted with unfamiliar topics that offer them essential underlying theory to learn how to critically examine and question the current *status quo*. Critical thinking should be actively stimulated and provoked. In fact, research highlights that to address complex sustainability issues, such as climate change and the ecological crisis, inter- and transdisciplinary approaches are key (Cairns et al., 2020; Vervoort et al., 2024; Veselova, 2019; Wamsler et al., 2021). As a matter of fact, diverse expertise and multiple sensitivities are needed to address these *wicked problems* (Rittel & Webber, 1973) holistically and creatively. We argue that such an inter- or transdisciplinary approach should also be mirrored in educational experiences in order to foster students' ability to critically confront and disrupt existing paradigms. Inviting external speakers and guest lecturers can therefore play a pivotal role in laying the foundation for the development of a post-anthropocentric creative mindset. As it is evident, this first action addresses ILO1 since it focuses on equipping students with framings and concepts useful to deconstruct norms and challenge anthropocentric Euromodern paradigms.

Tip 2: Blurring nature and culture boundaries – ILO2

To address ILO2, educators could organize activities outside the classroom that facilitate reconnection with the more-than-human world (Bertolotti & Vezzani, 2021; Metcalfe, 2024; Ruano, 2023) and foster understanding through sensory and emotional experience. These activities should encourage acts of *noticing*, as an ethnographic approach for *decentering* humans, encourage perspective shifts and build empathy, through unconventional methods such as multispecies ethnographies, embodiment probes and perception walks (Biggs et al., 2024). Activities based on these methods and approaches can help students cultivate emotional and sensory connections to the more-than-human world, fostering imagination and empathy towards all beings - both human and nonhuman. Immersive techniques such as meditative and embodiment practices, can help designers pay attention to otherness. We believe that employment of these experiential (and experimental) practices could enable students to emotionally engage with nonhuman beings and reconsider their own positionality within the interconnected web of life.

Tip 3: Blurring temporal boundaries (presents and futures) – ILO3

Ultimately, to address ILO3, educators could foresee activities that encourage students to engage in collaborative worldbuilding and story-making activities (Taboada et al., 2024; Turner & Taboada, 2021) and speculative fabulation exercises (Haraway, 2016), allowing their imagination to be guided by a developed sense of care for the more-than-human world and enabling them to shape visions of multispecies futures. As Sanchez et al. (2024) highlight, futures exploration does not simply imply looking at the futures: instead, it also requires us to question past dominant narratives and recognize our position in the present, reflecting on our *situatedness* within the more-than-human world (Sanchez et al., 2024). To create alternative narratives that could inspire visions of more-than-human coexistence, designers must first go through a process of unlearning and become careful listeners to unheard voices and neglected stories, to then be to envision new ones (Leitão, 2018).

Figure 2 synthesizes visually the roadmap, highlighting the interconnection between the ILOs and the identified tips to achieve these.

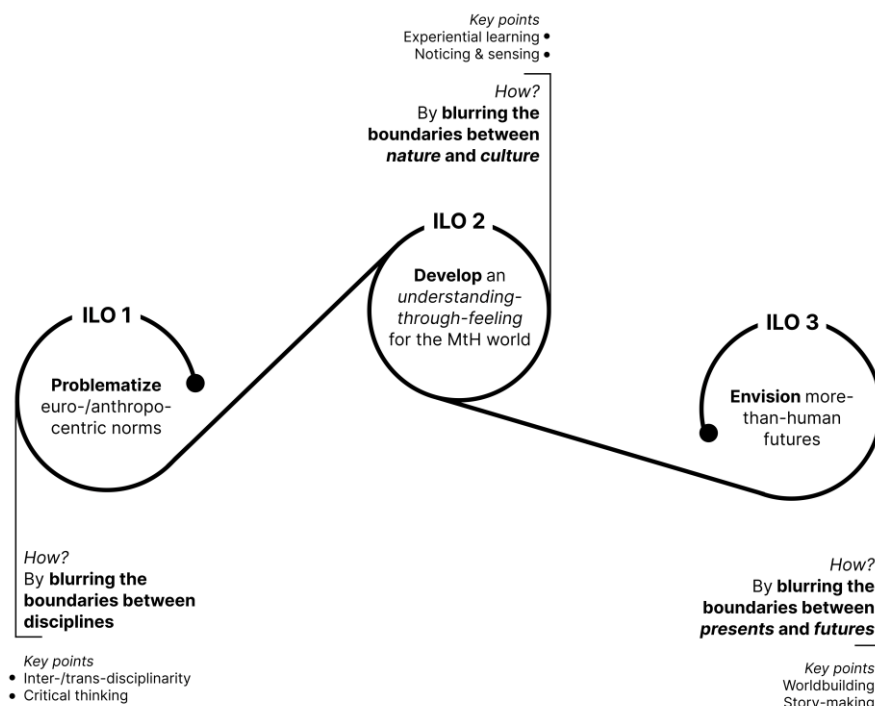


Figure 2. The image schematizes the roadmap, the ILOs and their key points. Image made by Eva Monestier (2025).

The ones presented above are intended to be general suggestions for educators to reflect and interpret them in the context of their own teaching practices and environments.

The following paragraph will briefly describe a design experiment that was created by the first author and a colleague (2025). The goal is not to provide a comprehensive account of the experiment and its results, but rather to emphasize how its design was inspired by, and adapted from, the hints outlined in the roadmap.

From theory to practice: the case of a design experiment

The experiment was an interactive installation designed to stimulate reflection on the notion of more-than-human care. While developing the overall design of the experience, the roadmap was a useful tool for the two designers (i.e. first author and colleague) to orient their work and focus on their goals.

The interactive experience was composed of three main moments, each connecting to the three ILOs.

First, a brief explanation of the installation's rationale and purpose was useful to contextualize it and allow visitors to immerse in the critical question of human-centricity and familiarize with notions like interdependency and interconnection between beings, more-than-human entanglements and relationality. Following the roadmap, this brief introduction addressed ILO 1, encouraging visitors to employ critical thinking to question current anthropocentric norms. Since the installation was exhibited during a well-known design festival, the audience was diverse. As a result, interdisciplinarity was inherently present, with the two designers acting as experts proposing an alternative worldview.

The second step of the installation required visitors to take a moment to *perceive* their existing – but oftentimes forgotten - affective relations with the more-than-human world and physically tracing those relations using threads. Following the roadmap, this affective exercise addressed ILO 2, inviting participants to materially – yet metaphorically – perceive more-than-human entanglements.

As a final step, visitors were asked to pick a What if? question card that prompted them to speculate about possible futures in which the more-than-humans have a different role than they do in the present. Following the roadmap, this visioning exercise addressed ILO3, fostering people's imaginative, empathetic and anticipatory skills.

The designers engaged in reflective practice after the experiment, and the collected data and observations are currently being analyzed to determine whether, and in what ways, the insights can contribute to enriching the roadmap.

Conclusions

The paper explored the idea that education plays a crucial role in equipping next generations of designers to become changemakers in the context of the contemporary ecologic crisis. It argues that by fostering a post-anthropocentric

creative mindset, design students can challenge Western dualistic ways of framing reality and learn to notice entanglement and relationality with the more-than-human world. Hopefully, this shift in perspective can help them anticipate visions of multispecies coexistence. As Ferrando (2016) argues, indeed, post-anthropocentrism represents the necessary paradigm shift to shape our collective futures.

In particular, the paper introduces the *thinking-feeling-doing continuum* as a conceptual synthesis of a post-anthropocentric creative process driven by imagination, empathy and anticipation. The *thinking-feeling-doing continuum* emphasizes how the cognitive, affective, and material dimensions of care can be employed to reframe more-than-human relations through creativity. In the process of deconstructing existing frameworks of thought that limit our imaginative capacity to perceive the complexity of the world around us, we advance the idea that a post-anthropocentric creative mindset built upon the *thinking-feeling-doing continuum* allows designers to enhance imaginative and empathetic capacities to anticipate visions of collective futures where humans are decentered and leave space for more-than-human entanglements. This new mindset becomes essential for designers to develop a sense of responsibility for their actions and start questioning traditional approaches to design. Educational theorists have long brought forth the idea that transformative learning methods can help individuals challenge outdated assumptions and reframe their understanding of eco-social relationships (Boehnert & Dewberry, 2023). We believe that proposing unconventional learning experiences built upon experimental teaching methods can play a crucial role in fostering a post-anthropocentric creative mindset, one that equips young designers with the abilities to tackle the challenges of our time and respond to the urgency of the ecological crisis in creative ways. Throughout the paper, we have preferred to use the term educational experiences² rather than training formats: our goal is not to constrain students with rigid boundaries and strict rules, but to let them free to notice and experiment human-nonhuman relationality and interdependence firsthand through acts of care. By offering these experiences, educators ensure that design students have safe spaces to let their creativity emerge from more-than-human encounters. Considering the foregoing, the roadmap could not be but a flexible and open tool to stimulate the design of educational experiences that could be integrated in existing courses in the form of stand-alone learning modules. Because these experiences aim to nurture a mindset attuned to human–nonhuman interrelations and interdependence, they hold value for designers across a range of sectors. They can be introduced as “pre-process” modules - positioned prior to the design process itself - to support the development of a post-anthropocentric creative mindset that can inform and guide design practice.

The ones discussed in this paper are new concepts, ongoing endeavors or experiments, attempts to creatively respond to contemporary transformations leveraging the creative potential of design. This is an important starting point because design has the power to leave permanent marks and engaging with the more-than-human world is precisely a call for “*making conversation, making time, making marks, making kin, (ma)kin(g).*” (Witt & Clarke, 2024, p. 124).

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² **Experience.** Noun, (the process of getting) knowledge or skill from doing, seeing, or feeling things. <https://dictionary.cambridge.org/dictionary/english/experience>. From Latin *experientia* (“trial, test”), derived from *experiri* (“to try, test”).

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