



# Ecosocial Philosophy of Education: Ecologizing the Opinionated Self

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## Abstract

While human beings generally act prosocially towards one another — contra a Hobbesian “war of all against all” — this basic social courtesy tends not to be extended to our relations with the more-than-human world. Educational philosophy is largely grounded in a worldview that privileges human-centered conceptions of the self, valuing its own opinions with little regard for the ecological realities undergirding it. This hyper-separation from the ‘society of all beings’ is a foundational cause of our current ecological crises. In this paper, we develop an ecosocial philosophy of education (ESPE) based on the idea of an ecological self. We aspire to consolidate voices from deep ecology and ecofeminism for conceptualizing education in terms of being responsible to and for, a complex web of interdependent relations among human and more-than-human beings. By analyzing the notion of opinions in light of Gilles Deleuze’s critique of the ‘dogmatic image of thought,’ we formulate three aspects of ESPE capable of supporting an ecological as opposed to an egoistic conception of the self: (i) rather than dealing with fixed concepts, ESPE supports adaptable and flexible boundaries between the self and the world; (ii) rather than fixating on correct answers, ESPE focuses on real-life problems shifting our concern from the self to the world; and (iii) rather than supporting arrogance, EPSE cultivates an epistemic humility grounded in our ecological embeddedness in the world. These approaches seek to enable an education that cultivates a sense of self that is less caught up with arbitrary, egoistic opinions of the self and more attuned to the ecological realities constituting our collective life-worlds.

**Keywords** Ecosocial philosophy of education (ESPE) · Ecological self · Epistemological humility · Adaptive thought · Ecofeminism

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## Introduction

Is education possibly a process of trading awareness of things of lesser worth? The goose who trades his is soon a pile of feathers. (Leopold, *A Sand County Almanac*, 18).

The snake which cannot cast its skin has to die. As well the minds which are prevented from changing their opinions; they cease to be mind. (Nietzsche, *The Dawn of Day*, § 573).

A baseline state of human sociality, we argue, is not a Hobbesian “war of all against all,” even in a society that prioritizes and privileges competition as a fundamental ethical bearing (Pulkki 2016). There exists at least a rudimentary “live and let live” kind of prosociality among humans; however, this prosociality rarely extends to the more-than-human lifeworld. Our human-centered understanding of the world has resulted in emphasizing the good life of human beings at the expense of the good life of more-than-human beings (e.g. Martusewicz, Edmundson and Lupinacci 2015). Our institutions, including educational, tend toward enhancing the social dimensions of human existence and excluding and expending the more-than-human from the realm of a significant other and our responsibility to and for those that are other (e.g. Ferrante and Sartori 2016).

If we look at the Western worldview from a cultural-ecological perspective (e.g. Martusewicz, Edmundson and Lupinacci 2015, 55–94; Bowers 1993), we can begin to discern the heart of the anthropocentric bias: a rational, autonomous and detached human self that values its own opinions above all else (see Martusewicz, Lupinacci and Edmundson 2015, 74, 78, 102). By ‘anthropocentric bias,’ we are describing a mode of thinking that privileges and prioritizes the human position at the expense of all other possible perspectives (Ferrante and Sartori 2016; Taylor 1997, 225–226; White 1997). Even though some level of anthropocentrism is understandable in educational thought — we are talking about educating human beings, after all — it is morally problematic and asocial to limit our responsibilities to human communities while other living creatures are conceptualized and valued as ‘resources’ for human use (Taylor 1997, 225–226; White 1997).

Anthropocentric thought makes our relationship with “the more-than-human world” egoistic and detached from its ecological and environmental bearings (Abram 1997), which makes even our “civilized” actions inhumane and exploitative towards other life forms on which we are co-constitutive. An example of this is the institutionalized practices of concentrated animal feeding operations (CAFOs) and the rampant decline of biological diversity and species extinction that are part and parcel of our human economies. This is enacted in the curriculum when we perform dissections: in our ‘love for knowledge,’ frogs and other beings have been dissected in schools en masse for showing a first-hand scientific observation, promoting an insensitive and destructive practice that pedagogically and curricularly demonstrates our strained relations to our non-human life-worlds. Seen from the perspectives of frogs or other non-human dissectional bodies, we might have appreciated some measure of epistemic humility on our part. A key issue here is the relationship between the opinions one holds and the world one inhabits. The question is whether to look at the world through one’s opinions or adapt one’s opinions to their ecological realities.

Aldo Leopold (1968) draws our attention to this reality in a passage he titles, “Thinking Like a Mountain,” which aptly illustrates an experience of tuning one’s opinions to the key of ecology.

We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then and have known ever since, that there was something new to me in those eyes — something known only to her and the mountain. I was young then and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean a hunters' paradise. But after seeing the green fire die, I sensed that neither the wolf nor the mountain agree with such a view.... I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer. And perhaps with better cause, for while a buck pulled down by wolves can be replaced in two or three years, a range pulled down by too many deer may fail of replacement in as many decades. (130, 132).

Leopold's witnessing the "fierce green fire dying in her eyes" became for him an entirely different way of comporting with the world. Whereas he previously simplified the problem in terms of predation, he learned to see the way of the wolf working in concert with the mountain and the deer as a set of relationships that kept the order of all parties maintained. This narrative embodies the meaning of his land ethic: "A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise" (224–225). The possibility of escaping one's opinions towards a more ecological sense of self is the perspective we will be developing in this paper.

While there are many strands of educational scholarship that are pursuing ecologically related themes such as ecofeminist pedagogy (see e.g. Harvester and Blenkinsop 2010) and ecojustice education (see Martusewicz, Lupinacci and Edmundsson 2015), we are proposing an ecosocial philosophy of education (ESPE) as a supplement or reorienting maneuver to these approaches. The core idea of ecojustice education, which is also grounded in ecofeminism, is studying and exposing the interwoven cultural roots of our social and ecological degradation and seeking justice in both our human and more-than-human worlds (Martusewicz and Johnson 2016, 57). Ecojustice education, ecofeminist pedagogy and ESPE share the same point of departure: extending social courtesy and care from human communities to the more-than-human world. ESPE proposes a simple passageway towards the goal of extending care to the more-than-human world through ecosocial action of the ecological self, which we will be describing in detail throughout this paper. Educating the ecological self is the prerequisite of ecologically enlightened action.

We develop the notion of an ecosocial philosophy of education (ESPE) from two main perspectives in this paper. First, we draw on German and Finnish ecosocial thinking to produce a cultural analysis of how the self has been and is understood in Western societies (f.e. Mathies, Närhi and Ward 2001; Salonen 2014; Opielka 1994). With the help of existing literature, we outline the cultural roots of anthropocentric attitude that characterizes many of our interactions with the more-than-human world (see Martusewicz, Lupinacci and Edmundson 2015). Drawing on the work of Arne Naess (2016) and ecofeminism, we articulate a more ecological conception of the self. In the second half of our paper, inspired by Gilles Deleuze, we turn to opinions as a perspective from within the self. We consider what kind of thinking might cultivate an ecological as opposed to an *egological* self with respect to the more-than-human world (cf. Biesta 2020). With the help of Deleuze and others, we envision ESPE that is capable of cultivating a more grounded, or more humble, ecological self.

## Some General Historical Background: Towards Ecosocial Thinking

For a long time now, humans have been understood as having inherent value (e.g. Pico Della Mirandola ([1486]1999)). Our inherent value has been connected to our rationality, which has been deemed exclusively a human attribute, which ontologically distinguishes and hyper-separates us from other living beings, a culture in which humans are thought to be superior and more deserving than other living beings (Plumwood 2002), entitling us to use other living beings in ways we ultimately see fit (Ferrante and Sartori 2016; Plumwood 2002). In some interpretations of the Bible, humans are entitled to “ruling over the fish in the sea and the birds in the sky and over every living creature” (Genesis 9:7; White 1997). In pointing this out, we are not blaming the Judeo-Christian tradition as most, if not all, monotheistic religions have given human beings a privileged place in nature (Haila 2009, 285).

The human hyper-separation from nature reached a historical apex during modernity. Carolyn Merchant’s documents this moment in her tellingly titled book *The Death of Nature* (1983). Before modernity, mountains, rivers, rocks and animals were understood to be teemed with life. The earth was seen as a living organism and the idea of it as a mother served as a cultural constraint restricting the use of its resources (Merchant 1983, 1–3). With the progress, development and civilization following modernity, we began to lose the sense of the organic world and the constraints preserving the integrity of the natural world began unraveling (Merchant 1983, p.1; Bai 2009). While losing the sense of the organic world, our concept of the social became confined within the human realm, leaving us ecosocially short-sighted. We consider this conceptual split to be foundational to our continued ecological recklessness.

Isaiah Berlin (1971) argues that, although this separation connects with the shift from the premodern to the modern world, it is difficult to trace its origins precisely. He places the separation between human reason and the natural world somewhere in the seventeenth century. This is supported by Aaltola, who argues that Descartes established a radical separation between humans and other animals, which he considered to be entirely mechanical (2013, 17; Descartes 2008, pp. 55–56 and *passim*). Following this distinction, the domains of *in-here* and *out-there* were separated (Roszak 1992; Descartes *ibid.*): Kant’s (1998) Copernican Revolution made thinking *in-here* the central reference point. The natural world could only appear to us under the iron constraints of the categories. And this split was exacerbated by Freud, who described the healthy human self or ego as something that is able to maintain a clear and sharp line of demarcation towards the outside world (Roszak 1992, 39–47).

To state it broadly, as a part of our modern Western mentality, the notions of self-enclosure, self-centeredness and rationality are ingrained in our ideas of education (e.g. Crowley 2010; Ferrante & Sartori 2016; Bragg 1996). Behind or within the idea of a hyper-separated and self-contained sense of selfhood is a rather aggressive concept of being human (Oliver 2004). Hegel’s master–slave relationship, Sartre’s understanding of each person as attempting to enslave the other, or Hobbes’s state of nature as “war of all against all, or the selfishness and greed of our contemporary *homo economicus* are poignant examples of this sense of selfhood. According to Gomes and Kanner (1995) there is a separative and heroic self that creates a false sense of independence based on the domination of other living beings. Domination of those deemed weaker, whether it be based on species, gender, age, sexual identity, race or ethnicity, is justified on the grounds of an autonomous and independent self who seeks superiority over other living creatures (Gomes and Kanner 1995;

Merchant 1983.) The main assertion of the ecofeminist is that the domination of women and nature go hand in hand and that social injustice and ecological injustice are closely intertwined (e.g. Harvester and Blenkinsop 2010; Martusewicz, Lupinacci and Edmondson 2015). Solving our ecological crises is possible *only* by solving our social crises.

The concept ecosocial combines two words: ecology and social. With the term *social* we are referring to the European, especially German and Finnish understanding, including the idea of ameliorating the living conditions of people in less fortunate life circumstances (a dictionary of standard Finnish 2020). In ecosocial thought, this kind of care for the less fortunate is extended to more-than-human beings. The ideas of sociality and individuality in ecosocial thought are Hegelian-communitarian as liberal-individualist accounts seem to be most prevalent in the global capitalist system. In Hegelian thinking, individual interests and the interests of the community can be reconciled without losing our essential individual freedom (see Pulkkinen 2000 about Hegelianism-Liberalism thinking). We are using the term ESPE to extend the scope of sociality to all earthlings for our collective flourishing.

The word *ecology* is derived from the Greek words *oikos* and *logos*. The former means home or household while the latter, a more debated term, can be translated as reason, discourse or even opinion. It is most readily understood as a scientific study concerning the interactions between organisms and their biotic and abiotic environments (f.e. Scheiner and Willig 2008; Crowley 2010; Esa 2020). This dominant conception of ecology notwithstanding, we are using Timothy Morton's (2016), sense of the term when he writes: "ecology... has to do with race, class and gender. It has to do with sexuality. It has to do with ideas of self and the weird paradoxes of subjectivity. It has to do with society. It has to do with coexistence" (2). "Ecology," he continues, "includes all the ways we imagine how we live together. Ecology is profoundly about coexistence. Existence is always coexistence" (4). The study of coexistence is necessarily multispecies and necessarily multidisciplinary. Instead of a scientific definition of ecology, ESPE is expansive and inclusive "realizing that nonhumans are installed at profound levels of the human — not just biologically and socially but in the very structure of thought and logic" (Morton 2016, 159).

## Ecosocial Thinking and Ecosocial Bildung

There have been ecologically inclined social work scholars for a hundred years, but the first to coin the term *ecosocial* is a German social scientist Michael Opielka (Matthies, Närhi and Ward. 2001, 26). The word eco-social, which is short for ecological social work, focuses on combining ecological and social questions to provide an impetus for building a sustainable society (Närhi 2004, 15). In addition to Opielka's work, ecosocial theory has built on understandings from systems theory and ecocritical thought (Matthies, Närhi and Ward 2001, 20–26).

The most important background for ESPE comes from the concept of Ecosocial Bildung (Salonen and Bardy 2015), which is used in the Finnish core curriculum to describe the nascent ecological turn in education (POPS 2014). Arto Salonen and Marjatta Bardy (2015; also Salonen 2014) have been Finnish pioneers in the ecosocial theory of Bildung. While Bildung traditionally relies on the anthropocentric and theocentric idea of Imago Dei (Taylor, 2016; Siljander and Sutinen 2012, 3), an ecosocial Bildung is about creating a way of life and culture which cherishes diverse, self-regenerating ecosystems in addition to the inviolability of human dignity (POPS 2014).

Ecosocial Bildung does not refer to the image of God, but is more interested in a multi-disciplinary scientific approach achieving sustainability (e.g. Salonen 2014). In ecosocial theory, human beings are a part of ecosystems, not distinct from it and attention is put on the interconnections of different life forms (Crowley 2010). Consequently, education, it is argued, needs to be reformulated in ways that enable our taking responsibility for our destructive actions.

We follow Närhi and Matthies (2001, 30; also Salonen and Bardy 2015) in conceptualizing ecosocial as a broad umbrella term for various attempts to solve different intertwined ecological and social problems, including issues of human and ecological justice as in ecojustice education (Martusewicz, Lupinacci and Edmundson 2015). Even with the broad umbrella term, the term ecosocial still consists of two important terms, ecology and social, as discussed earlier. The meaning of ecosocial is always tied to social interactions in an ecological context.

Combining social and ecological is not only a philosophical idea. There is evidence, in the microbial level, that our interaction with the forest floor and sod is beneficial for our health. The first human intervention study, directed by Marja Roslund and the research group (2020), suggests that exposing day-care children to forest bacteria enhances immune regulation. Our excessive hygiene and hostility to all the germs result in killing both beneficial and harmful microbes, which is why antibiotics are used now with more caution. Human immunity and health, even our moods, are dependent on diverse microbes in our skin and gut (Gilbert, Sapp and Tauber 2012). We will have to learn a more social courtesy also towards microbes instead of the biophobic “kill’ em all,” mentality (see Pulkki, Pulkki and Vadén 2019).

Not all ecosocially inclined theories can be included under the umbrella of ecosocial thought. For example, epidemiologist Nancy Krieger (2007) claims she was the first to coin the term ecosocial theory in 1994. But the term was already in use in Germany during the seventies (Matthies, Närhi & Ward 2001, 20–26). Murray Bookchin’s (1993) account of *social ecology* is interesting and his notion of ecological problems arising from social problems is shared by ESPE. And importantly the other way around too: ecological problems cannot be understood clearly without dealing them together with the problems of a society (Bookchin 1993). Even with important insights, some theories combining ecological and social issues such as social ecology and biosocial theory, do not seem to go far enough in their non-anthropocentric considerations of the more-than-human world in terms of human experience, perception and attention.

ESPE is an attempt to encapsulate the life-sustaining idea for contemporary education. Human social and asocial actions affect increasingly the flourishing of ecosystems and the decreasing flourishing of ecosystems, which affect, in turn, human well-being (Crowley 2010; Pulkki 2020; Salonen 2014; Salonen and Bardy 2015). The general line of thought of ESPE is simple: extending the common social courtesies we have in human social life to other kinds of life in order to build a less ecologically destructive society. Widening the notion of social to the “community of all living beings” (see Seed, Fleming and Naess 1988), requires us to reconsider the (individualist) idea of self that is the part of the ecological community (see Martusewicz, Lupinacci and Edmundson 2015, 78). Even though ESPE is interested in the phenomena of life and fostering it, we are not limited to biotic nature. Ecological perspective is critical as it focuses on the relationships between organisms and their biotic *and* abiotic environments.

## The Ecological Self

In order to consider the relationship between our educational realities and the ideas of ESPE, we need to seek a new kind of understanding concerning the self. In our interpretation, the idea of ecological self provides an alternative to Western individuality tied to the notion of self-interest and the opinions needed to procure one's "self-interest" (see Hirschmann 1981) in a consumer-capitalist society. According to Arne Naess (2016, 83): "the ecological self of a person is that with which this person identifies". This deep ecological idea of ecological selfhood draws our attention to the things we identify ourselves with (see also Plumwood 1991; Sessions 1991; Diehm 2002; Fox 1989).

Michael Bonnet (2016, 2019) has criticized for example scientism as a privileged way to access and apprehend reality. This is closely associated with the metaphysics of mastery, according to which reality is an object of human will (Bonnet 2016; 2019; Plumwood 1993; Ingold 2002, 16). If we identify ourselves as detached scientific observers of reality or masters and resource managers of nature, our human selfhood becomes slanted towards ecosocial destructiveness. Ecojustice scholars have already shown how ecologically problematic ideas are a part of our worldview and the root metaphors we use to understand the world and ourselves (e.g. Bowers 1993; see Orr 1992). In order to develop a more ecological relationship with the world, we therefore need a way around our cultural prejudices (Martusewicz, Lupinacci and Edmundsson 2015). One way to achieve this is going deep and teasing out the ontological distinctions of the self as Naess's (2016) work describes.

According to Naess, the maturity of the self has traditionally been considered to develop in three stages: from the ego to the social self, which comprises the ego and from the social self to the metaphysical self (Naess 2016, 82–8; Strumse 2007). The problem with this kind of maturity or progression is that it is built upon the foundations described in Plumwood's (2002) idea of the hyper-separation or bifurcation of humans, on the one hand and nature, on the other. The human self is, in other words, enclosed unto itself and from its ecological and environmental surroundings (Naess 2016, 82–83; Plumwood 2002). As a part of our modern Western cultural mentality, the notions of self-enclosure, self-centredness and rationality are ingrained in our ideas of education, learning and the role of the student as a learner (e.g. Crowley 2010; Ferrante and Sartori 2016; Bragg 1996).

The ecological understanding of self is educationally a reminder that the hyper-separation of the self and the world is a cultural construct which can be constructed otherwise depending on the nature of education. In the Eastern traditions of Buddhist and Taoist philosophy, the demarcation lines between the self and the world are less rigid and fixed than in Western cultures (Strumse 2007; Wang 2016; Bragg 1996). Chia-Ling Wang compares Buddhist and Taoist philosophy with the ecological self developed by Naess. According to Wang, instead of inspiring students' motivation to seek what they desire, education should promote the emptying of the mind, which creates new possibilities for human life (Wang 2016, 1263; cf. Biesta 2017, pp. 16–17). The ecological self and ESPE share the emphasis on the idea of a peaceful mind which enables us to escape arbitrary opinions by understanding the continuity and interrelations of the in-here and out-there perspectives. When we learn to see ourselves not as contrary to the world but a part of it, we are better able to appreciate life in its variety (f.e. Orr 1994).

A practical and educational idea that an ecological self provides is creating opportunities for identification. The inability to identify with differences, whether those differences are gender, class, race, ethnic, species and so on, uphold our poor understanding of the more-than-human world. Identification includes something Tim Ingold (2002, 22)

has called “education of attention”. By learning attention and “sentient ecology,” we can teach and learn skills of sensitivity needed living in a particular environment (Ingold 2002, 25). Attention and perceiving are the preconditions of identification and deep learning changes one’s perception towards the receptivity to the other (The Crex Crex Collective 2018, 69–71). Learning *response-ability* means to be able to respond with sensations and perceptions and also with intellection and reflection, according to Kelly Oliver (2004, 116). An important obstacle for identifying with the more-than-human world are the deep-seated and culturally laden opinions situated between our senses of self and the world.

## Inside the Ecological Self: Opinions and Thought

In the previous sections, we described some social and historical ideas that ground our pursuit of an ecosocial being in the world. In a similar vein to what Biesta (2017, p. 10) calls “looking away from the subject,” ascertaining the educational importance of such broad cultural-ecological analyses requires us to explore how they appear when looked at from inside the self. To do this, we consider the case of opinions. We start from the idea that human identity and selfhood are built from the things we think and hold opinions of. In an Emersonian way “you are what you think” and we think this is what Naess means by identification.

The Finnish language shows the intimate connection between opinions and identifications. The Finnish word for opinion, *mielipide*, consists of two words: *mieli* and *pide*. The former translates to ‘mind’, while the latter can be expressed with the phrase ‘something being held on to’. Based on this, we get the rough English translation for *mielipide* as ‘mind-held’. Although mind-held is not a literal translation, it conveys the idea that opinions are things that the mind holds on to. Understanding opinions as mind-held raises the further question of *what* is this ‘something’ that the mind holds onto? In addition to ‘mind’, the Finnish word *mieli* can also be translated as ‘meaning’ or ‘sense’. Although the word is seldom used in this way in contemporary Finnish, it is the root of the words ‘meaningful’ (mielekäs), ‘nonsensical’ (mieletön) as well as the expression ‘in what sense?’ (missä mielessä?). The word *mielipide* suggests the ‘something’ that the mind holds is a meaning or a sense. In other words, opinions are meanings that the mind holds on to, meanings that the mind refuses to let go of.

Opinions are ideas and meanings one identifies with. Two central points follow: first, it is necessary to form opinions about the world that correspond to our ecological realities — one might call this eco-socialization (Keto and Foster in press; cf. Biesta 2009). We will leave this aspect of ESPE for future elaborations. The second challenge concerns the *intensity* of holding onto the meanings that constitute oneself. The being of an egoistic self would involve a strong hold on the meanings in one’s mind. In fact, we might speak of a *stronghold* of meanings that effectively protects what is mind-held from any interference from the outside world (cf. Biesta 2020). Needless to say, this stronghold is the antithesis of ecosocially viable behavior. The being of an ecological self would be characterized by precisely the opposite: adaptive opinions. For example, if (and when) the ecological thresholds of the Earth or the needs of other earthlings are overstepped, we need to alter our identifications with the destructive opinions to constructive ones. The ecological being of the self is, then, to paraphrase Biesta (2017, p. 16), a questioning of our opinions in light of the requirements posed to us by the earth and the earthlings inhabiting it. A prime example being the reflections by Aldo Leopold in his “Thinking Like a Mountain”.



The work of the deep ecologist Joanna Macy on the Buddhist ideas of “the wider sense of self” and the “greening of the self” helpfully articulate these concerns. (Macy and Johnstone 2012, p. 77–91; Macy 2014; Macy 2009, ch.14). According to Macy, we first identify with 1) ourselves and our self-interests. When we become parents, for example, it is easier to identify with 2) a family or a group. After this we become equipped identifying with 3) a community and 4) a human society. Ultimately, the green self may identify even with 5) a whole web of life and all the entities in it (Macy and Johnstone 2012, 79–81). These five circles draw attention to the need to be adaptive with our opinions. The rigidity of opinion is a major obstacle for learning broader identifications. This kind of Buddhist thinking was among the philosophies that influenced Naess and his understanding of an ecological self. Interestingly, the Finnish “mielipide” and the buddhist philosophy about the suffering induced by clinging (identifying) to transient opinions, is well attuned — this being so, even though Finland is a Western Christian nation far from any major Buddhist cultural influences.

The problem of moving beyond one’s opinions has been central to the tradition of Western philosophy (e.g. Macy 2009, ch.2). Typically, the possibility of seeing beyond one’s opinions has been located in knowledge. Kant (1998, B850) claims that when we hold an opinion, we take something to be true despite having neither subjectively nor objectively sufficient grounds for doing so. Kant contrasts this with knowing where we have both subjective and objective grounds for taking something to be true. An example of trying to move beyond one’s opinions with the help of knowledge can be found in the seminal opening lines of Descartes’ *Meditations*:

It is some years now since I realized how many false opinions I had accepted as true from childhood onwards and that, whatever I had since built on such shaky foundations, could only be highly doubtful. Hence I saw that at some stage in my life the whole structure would have to be utterly demolished and that I should have to begin again from the bottom up if I wished to construct something lasting and unshakeable in the sciences. (Descartes 2008, p. 17).

Descartes’ project of establishing “something lasting and unshakeable in the sciences” is an exceptional project; however, the relationship between the certainty of knowledge and untrustworthiness of opinions (see also *ibid.*, p. 8 and *passim*) is the same as it was for Plato before him and was for Kant later. It is only by escaping opinions that one can acquire true knowledge and, conversely, escape opinions by acquiring true knowledge. If we were to follow their lead, we could state that the way out of the stronghold of opinions is simply to acquire true knowledge of the world.

Although it is tricky to provide a direct link between the contemporary educational system and the philosophies of Plato, Descartes and Kant, the idea that acquiring true knowledge helps to avoid holding on to harmful opinions, is certainly a prevailing one. This has resulted in educational practices that seek to impart correct content and skills to children in the hopes that they might avoid holding on to unfounded opinions. However, extant research suggests that knowledge is vital, but not necessarily the most important solution to escaping the stronghold of opinions, especially in the context of ecological crises. The gap between knowledge and action in sustainability education, for example, is well-known (Kolmuss and Agyemann, 2002).

An alternative take on the relationship between opinions and knowledge can be found in the work of the French philosopher Gilles Deleuze and his analysis of the ‘dogmatic image of thought’ (hereafter DIT, Deleuze 2014, 171–221). In short, he argues that Western

philosophy has relied on an implicit understanding of what it means to think and that this understanding is conservative in nature. Deleuze begins his analysis of the DIT by criticizing Descartes' 'cogito ergo sum'. Descartes' 'Cogito' is the result of his systematic doubting of all his opinions as demonstrated in the passage from his *Meditations* quoted earlier. The ambitious idea of systematic doubt is supposed to help Descartes "rid myself of all the opinions" and reach that which is completely certain. Even though Descartes does not accept any particular objective assumption, a set of subjective presuppositions or postulates remain hidden in his argument. Descartes assumes that everyone knows what is meant by 'thinking', 'being' and 'I' (Deleuze 2014, 171–172).

The two meanings of Deleuze's concept of common sense are important here: First, the DIT is based on recognizing that which everybody knows to be true: "this is a table, this is an apple, this is a piece of wax, Good morning Theaetetus" (Deleuze 2014, 178). This is common sense: recognizing what everyone knows, what no one can doubt. Second, the ground for recognition and, consequently, the DIT, is the unity of the I. Recognition is made possible when memory, the senses and imagination converge on the same object. In recognizing, we identify as 'same' something that we, for example, both sense and remember. Here common sense has the meaning of *concordia facultatum*: a shared sense for all the faculties of understanding.

Common sense thus connects recognition and the unity of the I: they support each other and collaborate to engender thought that sustains and strengthens what is already mind-held. Together they create the stronghold of meanings where opinions remain unaffected by the outside world. As long as we think according to the DIT, our thinking sustains the very opinions we are trying to doubt with the result that the certainties we affirm in the end are actually the ones we start with. Thus, knowledge might only reinforce the stronghold of opinions rather than help escape from it. This is not problematic when we are only concerned with learning established values or maintaining the identifications we already have. In fact, we cannot do without recognition. Thought based on recognition is not only essential for everyday life but for maintaining a continuous identity; however, in seeing beyond one's opinions, in questioning one's identifications, it is of no use.

## Education Conducive of Adaptable Opinions

Having already located the being of an ecological self in the adaptability of opinions we have now revealed, with the help of Deleuze, that a new kind of thinking is required for our opinions to become adaptable. We now turn to more concrete questions about what ESPE would look like: (i) what kind of thought would be required to go beyond one's opinions in order to achieve ecological adaptability; and (ii) what would be the educational means of fostering such thinking?

DIT presents an alternative view of what thinking might be. We can call this alternative the radical image of thought. Whereas DIT is based on the unity of the I, the radical image of thought is based on a fundamental encounter with the world: "Something in the world forces us to think" (Deleuze 2014, 183). This something can be many things, but "it's primary characteristic is that it can only be sensed" (Deleuze 2014, 183). This is the crucial difference between DIT and the radical image. In DIT, that which is sensed is not only sensed but is also remembered and imagined with the result that what is sensed is tied to what was already mind-held. In an encounter, by contrast, a difference emerges in-between what is sensed and what is remembered. When Aldo Leopold witnessed the green

fire dying in the eyes of the wolf, he encountered something that he did not recognize, something he could only sense. In moving towards this difference between that which is sensed and that which is mind-held, there emerges the possibility of thinking beyond one's ecologically uninformed opinions and one's self that pushes us towards the ecosocial communities of living beings.

### The Adaptability of Concepts

In order to move from DIT towards radical thought capable of moving beyond what is mind-held, it is pertinent to ask: what sustains this model, how does it operate in thought? Recognition relies on the more general postulate of representation (Deleuze 2014, 181). Representation always presumes a thinking I at its core, since there needs to be someone who is representing. We meet again here the trio of opinions: there is the mind, which represents; there is the concept, which is represented; and there is the relation between the two as holding-on. Within representation, thought cannot grasp the difference introduced in an encounter with the world in any other way than with reference to the thinking I. Consequently, in order to support adaptive thought of the ecological self, moving past representation is a necessity in education.

The role of concepts is important: in order to be represented, concepts need to have a definite identity and they must be opposed to other concepts (Deleuze 2014, 181). Moving beyond representation becomes possible when the identities of concepts become flexible and when they are determined in ways other than opposition. Both tasks are concerned with the boundaries between concepts: a firm identity determined by opposition erects a strict boundary between one concept and the next. In light of our analysis of opinions, the strict boundaries between concepts support the boundaries between I and the world (cf. Roszak 1992).

A possible solution can therefore be found in making the boundaries between concepts more permeable and fluid (Wilenius 1987). Education seeking to reduce the intensity of mind-held meanings would benefit from ideas that remain relatively open with regard to their identity and defined based on their connections and differences instead of oppositions. In short, they would be adaptable concepts. While still maintaining a sense of self in the form of mind-held meanings, the boundaries of these meanings would become more flexible, reducing the intensity of the boundaries between the I and the world.

### From Correct Answers to Sensible Questions

In education, special attention is placed on guiding students towards right answers and assessing the result of such guidance. This raises the question of what we are aiming for, but also the question of what we should be avoiding. As long as we remain within DIT and recognition as its main principle, the threat to thinking is error. This can be seen clearly by considering what is meant by error. The answer is obvious: "What is error, if not false recognition? (Deleuze 2014, 194)". When we err, we confuse a sensed object with another remembered object as in "the case of 'Good morning, Theodorus', when it is Theaetetus that passes by" (Deleuze 2014, 195).

Error thus appears to be a problem from the point of view of the unity of the I — it introduces differences where none should be. Trying to avoid error, therefore, supports holding onto one's opinions and education capable of cultivating adaptable opinions would make it an aim of not trying to avoid errors. Indeed, the failures that would threaten a radical image

of thought would not be errors but something worse — nonsense, “remarks without interest or importance, banalities mistaken for profundities, badly posed or distorted problems” (Deleuze 2014, 200). Education committed to cultivating ecosocial opinions would focus on activities where sense, important or interesting remarks, profundities and well-posed problems could be sought out instead of correct answers posed or the avoidance of error.

Where could we find places to make sense? For Deleuze, any proposition receives its sense in proportion to the problem of which it is the solution (Deleuze 2014, 211). Propositions are grounded in the generality of problems. Should we lose track of the problem that makes sense of the solution, we would be limited to viewing the solution as correct or incorrect: its sense would be lost. In order to make sense, we therefore need to determine problems in themselves, not in terms of a possible solution. This is why it is important for education to avoid artificial problems where the answer is known in advance. Such “artificial textbook examples”, “arbitrarily detached from their context” (Deleuze 2014, 201) only support DIT. Having been detached from their proper context, they lack sense. As a result, students are left with only one option: to make sense of the problem from the perspective of what is already mind-held.

By contrast, examples and problems from the ‘real-life’, or “living thought” (Deleuze 2014, 201), should be sought. This would shift the focus from maintaining the unity of the I to the sensible world around the self: from the mind-held towards an ecological self. The decontextualization of education is a good example of what human-nature hyper-separation is in pedagogical practice and how the non-ecological self is produced: We the humans are “in-here” and the nature (context) is “out-there” (see Roszak 1992). We often teach about nature in air-conditioned concrete boxes, where connecting with the outside air-world through an open window is not possible because of the automatically conditioned air. This has paradoxical pedagogical implications and confusing curricular contexts as human sociality is also confined in these buildings called schools, which strictly cuts out other living beings.

The primacy of sense and the resulting importance of problems in supporting ecologically adaptive opinions suggests a radical rethinking of schools and what should be assessed in education. In order to avoid tracking problems from particular cases of solution, we should evaluate the process of creating problems instead of solving them (Kelly 2009, 89–97). The green fire dying in the eyes of the wolf was no solution but rather pointed to the existence of a profound problem, the problem of living together. In practical terms, valuing the creation of such problems would mean shifting the focus from measuring the outcomes of learning to measuring the starting point of learning with regard to its sense, or the truthfulness of the problems to be solved. Yet, this is where an impasse is encountered: how could sense be assessed, let alone measured? “Are we measuring what we value, or valuing what we measure?” (Biesta 2009). While the difficulty in assessing sense is a real one, we should set about facing it, instead of avoiding it.

## From the Opinionated Self to Epistemological Humility

The idea of epistemological humility is closely related to adaptable concepts and sensible problems. Humility is the antithesis of arrogance (Kumar 2014) and it derives from Latin *humilitas*, *humilis* and *humus*, meaning low, lowly and the ground (Waks 2018). Humility in the original sense of the word means being of the earth, the humus, the soil, the ground, but this meaning does not connote poor self-esteem, self-worth, or submissiveness, but a realistic attunement with the world without identification to a narrow idea of self or

self-interest (see Waks 2018). Humility can be understood as the foundation of all virtue (St. Augustinus, according to Waks 2018) as virtuous action requires a robust sense of reality and self-reflection (Parviainen and Lahikainen 2019).

Nel Noddings (1986) has elaborated the ethics of care based on three elements essential to humility: relatedness, receptivity and responsiveness, which includes the care for animals, plants and things. Teaching with dispassionate rationality has marginalized the emotional responsiveness needed for learning humility. Education is more than the fostering of rational judgement (Noddings 1986; Waks 2018). Education with its interest in evaluation, standardized testing, accountability, competition and school rankings contributes to a kind of epistemophilia (see Code 2007; Cox 2000) involved in building an opinionated self.

In Freudian analysis, *epistemophilia* derives from relieving a negative emotion such as anxiety by learning to know something (Cox 2000). By knowing, we earn better grades, better salaries and more power over others by perpetuating the sense of entitlement that prevents us from questioning our destructive actions. We do need more knowledge to understand the increasing complexity of the world. But if we identify with the knowing ego in an epistemophilic manner — the knowing subject as opposed to the object of knowledge — this might become an obstacle for sensing, feeling, perceiving and thinking the more-than-human world (Sewall 1995; Pulkki, Saari and Dahlin 2015).

As we have seen with the help of Deleuze and Aldo Leopold, our thinking is a result of an encounter with the world. The world itself questions our knowledge, provided we remain open to the problems it poses. Learning is “the appropriate name for the subjective acts carried out when one is confronted with the objectivity of a problem” (Deleuze 2014, pp. 213–214). In other words, learning is used to refer to a subjective relationship with the world beyond the concepts and rules one uses to describe it. We are suggesting that, in order to reach a meaningful relationship with the world beyond one’s mind-held meanings, our knowledge needs to be kept in question (Bojesen 2019).

Moreover, keeping our knowledge in question needs to be accompanied by what The Crex Crex collective (2018, 72–74) call the joy of not knowing. This is not to say that we are advocating ignorance, however. Rather, it is to highlight that putting into question is not always something that calls for more knowledge about the matter at hand. Questions of knowledge are not always “first questions” (see Biesta 2020)—often there are more important questions to ask than “What is it that we do not know?”. Learning “response-ability” (Oliver 2004, 116) and care (Noddings 1986) are but two seminal examples.

Sometimes this might even be best accomplished by epistemological silence. Contemplative approaches to education contend that quieting the automatic chatter of our minds is epistemologically helpful and conducive to ethical response-ability (Bai 2017; Pulkki, Dahlin and Värri 2017; Pulkki, Saari and Dahlin 2015). Phenomenologically, we hold opinions, but the culturally and socially influenced opinions also hold us (Klemola 2005). Learning epistemological humility, therefore, requires us to become aware of how our culturally influenced mind chatter operates with our rationalizations, emotions and volition. With humility, it is possible to notice the autopilot mind chatter and see its workings in ourselves. Humility and the quieting of mind chatter also open our senses buried beneath the chattering minds. This way, there is pedagogical value also in silence and abstaining from opinion formation in some situations (Waks 2018).

Education should cultivate an epistemological humility rather than epistemophilia. To summarize the preceding discussion, we take epistemological humility here in two senses. First, in the sense that even the best and surest knowledge can be inadequate in the complexity of the more-than-human world (Abram 1997) and that we must therefore do our best to avoid epistemological arrogance in regard to known unknowns and unknown

unknowns (Parviainen and Lahikainen 2019). Second, we take it in the sense that questions of knowledge are not (always) the most important questions and we should see such questions as embedded in a broader ecology of questions about response-ability and care (Oliver 2004; Noddings 1986). Together these show the way humility reduces the intensity of our opinions and, consequently, also weakens the boundaries of the self: “personal selves then become less determinate [...]. Having less in the way of distinct individuality to protect and defend, feeling less vulnerable as a self, their worlds become in their eyes less dangerous” (Waks 2018). Cultivating humility thus leads towards a more ecological being of the self capable of encountering other earthlings.

## Final Remarks

Our task in this paper was to formulate an ecosocial philosophy of education with the problem of the opinionated self. We considered the ecological self as a fruitful alternative for reconsidering the identifications we hold in the face of the more-than-human world. Through an analysis of the case of opinions, we identified three shifts that might lead the way in articulating an education that is supportive of an ecological instead of an anthropocentric self in three movements: 1) moving towards using adaptable concepts that would make the borders between the self and the world less rigid; 2) moving towards assessing the formulation of real-life problems instead of the correctness of answers to artificial problems shifting our concern from the unity of the opinionated self to its surrounding world; and 3) moving towards knowledge that remains open to new possibilities helping us to cultivate epistemological humility and prevent opinions from becoming reified.

In the light of our analysis, education built upon these foundations could foster radical thought capable of sensing and perceiving the world as encountered by the ecological self, an idea of self-interest that is intertwined with other selves in the human and more-than-human world (Ingold 2002; Sewall 1995; Naess 2016). Such thinking can put our opinions into question, so that the intensity of our identifications does not prevent us from adapting to our planetary limits. One way to do this, as we have argued, is to cultivate epistemic humility grounded in encounters with the more-than-human world instead of epistemophilia accompanied by human entitlement. A true dialogue requires humility needed in attending and perceiving the more-than-human world (Harvester and Blenkinsop 2010).

Ecologizing the anthropocentric self is but one aspect of ESPE, which is under development. Working towards an education capable of fostering a life-affirming attitude for the more-than-human-world and the ecosystems we depend upon is a first step in the right direction. ESPE is a project that aspires to cross-pollinate educational thought with the broad umbrella term of ecosocial education. We need both clear-headed and well composed thinking *and* the cultivation of human emotions, desires, attention and perceptions (see Sewall 1995; Ingold 2002; Waks 2018; Noddings 1986). ESPE emphasizes both human and non-human aspects of sociality in our understanding of our interdependencies and interrelations to help us cultivate care and compassion (e.g., Plumwood 2002; Crowley 2010; Orr 1994) in the ecosocial communities of all beings.

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## References

- A Dictionary of standard Finnish. 2020. <https://www.kielitoimistonsanakirja.fi/#/sosiaalinen>
- Aaltola, Elisa, and Sami Keto. 2018. *Empatia - Myönteellisen tiede*. Helsinki: Into kustannus.
- Aaltola, Elisa. 2013. *Johdatus eläinfilosofiaan*. Helsinki: Gaudeamus.
- Abram, David. 1997. *Spell of the sensuous Perception and language in a more-than-human world*. New York: Vintage books.
- Bai, Heeson. 2017. Becoming and ecological self through contemplative ways. *Philosophy of Education*, 370–374. <https://educationjournal.web.illinois.edu/ojs/index.php/pes/article/view/86/55>
- Bai, Heeson. 2009. Re-animating the universe: Environmental education and philosophical animism. In *Fields of green: Restorying culture, environment, education*, ed. M. McKenzie, H. Bai, P. Hart, and B. Jickling, 135–151. New Jersey: Hampton Press.
- Berlin, Isaiah. 1971. The Assault on French Enlightenment. Kant and Individual Autonomy. In Henry Hardy (ed.), *The Isaiah Berlin Virtual Library*. <http://berlin.wolf.ox.ac.uk/lists/nachlass/assault2.pdf>
- Biesta, Gert. 2009. Good education in an age of measurement: On the need to reconnect with the question of purpose in education. *Educational Assessment, Evaluation and Accountability* 21 (1): 33–46.
- Biesta, Gert. 2017. *The Rediscovery of Teaching*. New York & London: Routledge.
- Biesta, Gert. 2020. The three gifts of teaching: Towards a non-ecological future for moral education. *Journal of Moral Education*.
- Bojesen, E. 2019. Positive Ignorance: Unknowing as a Tool for Education and Educational Research. *Journal of Philosophy of Education* 53 (2): 394–406.
- Bonnet, Michael. 2019. Towards an ecologization of education. *The journal of environmental education* 50 (4–6): 251–258.
- Bonnet, Michael. 2016. Environmental Consciousness, Sustainability and the Character of Philosophy of Education. *Studies in Philosophy and Education*, 333–347.
- Bookchin, M. 1993. What is social ecology? In *Environmental philosophy: From animal rights to radical ecology*, ed. M.E. Zimmerman. Englewood Cliffs HJ: Prentice Hall.
- Bowers, Chet. 1993. *Education, cultural myths and the ecological crisis*. Toward deep changes, Albany: State university of New York press.
- Bragg, Elizabeth, and A. . 1996. Towards ecological self: Deep ecology meets constructionist self-theory. *Journal of environmental psychology* 16: 93–108.
- Code, Lorraine. 2007. The Power of Ignorance. In *Race and epistemologies of ignorance*, ed. S. Sullivan, and N. Tuana, 213–230. Albany: State University of New York Press.
- Cox, Peta. 2000. Epistemophilia. *Rethinking Feminist Pedagogy*. *Australian Feminist Studies* 25 (63): 79–92.
- Crowley, Thomas. 2010. From “Natural” to “Ecosocial Flourishing”: Evaluating Evaluative Frameworks. *Ethics and the Environment* 15 (1): 60–100.
- Deleuze, Gilles. 2014. *Difference and repetition*. London: Bloomsbury.
- Descartes, Rene. 2008. *Meditations on first philosoph*. Michael Moriarty (transl) Oxford: Oxford University Press.

- Diehm, Christian. 2002. Arne Naess, Val Plumwood and deep ecological subjectivity A contribution to the “deep-ecology-ecofeminism debate.” *Ethics & Environment* 7 (1): 24–38.
- Esa 2020. What Is Ecology? The Ecological Society of America (ESA). <https://www.esa.org/about/what-does-ecology-have-to-do-with-me/>
- Ferrante, Alessandro and Sartori, Daniele. 2016. From Anthropocentrism to Post-humanism in the Educational Debate. *Relations beyond anthropocentrism* 4(2), 175–194. <https://www.ledonline.it/index.php/Relations/article/view/1074>
- Fox, Warwick. 1989. The Deep Ecology-Ecofeminism Debate and Its Parallels. *Environmental Ethics* 11 (1): 5–25.
- Gilpert, Scott F., Jan Sapp, Alfred Taubert, and I. . 2012. A symbiotic view of life: we have never been individuals. *The quarterly review of biology* 87 (4): 325–341.
- Gomes, Mary, and E. & Kanner, Allen. D. . 1995. The Rape of the Well-Maidens Feminist Psychology and the Environmental Crisis. In *Ecopscology Restoring the Earth Healing the Mind*, ed. T. Roszak, M.A. Gomes, and A.D. Kanner, 111–121. San Francisco: Sierra Club Books.
- Haila, Yrjö. 2009. Ekososiaalinen näkökulma. In *Ilmo Massa Vihreä teoria*, 261–287. Gaudeamus: Helsinki.
- Harvester, Lara, and Sean Blenkinsop. 2010. Environmental education and ecofeminist pedagogy. Bridging the environmental and the social. *Canadian journal of environmental education* 15: 120–134.
- Hatten-Flisher, Jennifer., & Martusewicz, Rebecca. 2018. Ecofeminism and Education. *Oxford Research Encyclopedia of Education*. Retrieved 19 Nov. 2020, from <https://oxfordre.com/education/view/https://doi.org/10.1093/acrefore/9780190264093.001.0001/acrefore-9780190264093-e-136>.
- Hirschman, Albert. O. 1981. *The Passions and the Interests. Political Arguments for Capitalism before Its Triumph*. Princeton, New Jersey: Princeton University Press.
- Ingold, Tim. 2002. *The perception of environment*. Essays on livelihood dwelling and skill, London: Routledge.
- Kant, Immanuel. 1998. Critique of Pure Reason, ed. & transl. Paul Guyer & Allen Wood, Cambridge: Cambridge University Press.
- Kelly, Vic. 2009. *The Curriculum: Theory and Practice*, 6th ed. London: Sage.
- Keto, Sami. & Foster, Raisa. 2020. Ecosocialization – an Ecological Turn in the Process of Socialization. *International Studies in Sociology of Education*. <https://doi.org/10.1080/09620214.2020.1854826>
- Klemola, T. 2005. *Taidon filosofia — filosofin taito*. Tampere: Tampere University Press.
- Kollmuss, Anja, and Julian Agyeman. 2002. Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental education research* 8 (3): 239–260.
- Kumar, Satish. 2014. Three Dimensions of Ecology: Soil, Soul and Society. In *Spiritual Ecology The Cry of the Earth*, ed. L. Vaughan-Lee, 129–141. Point Reyes: Golden Sufi Center.
- Leopold, Aldo. 1968. *A Sand County Almanac and Sketches Here and There*. London: Oxford University Press.
- Macy, Joanna. 2014. The Greening of the Self. In *Spiritual Ecology The Cry of the Earth*, ed. L. Vaughan-Lee, 145–156. Point Reyes: Golden Sufi Center.
- Macy, Joanna, and Chris Johnstone. 2012. *Active hope How to face the mess we are in without going crazy*. Novato, California: New world library.
- Macy, Joanna. 2009. *World as Love*. World as Self Transl Jussi Korhonen, Helsinki: Basam books.
- Martusewicz, Rebecca, and Laura Johnson. 2016. Chapter 5: EcoJustice Education”. In *MacMillan Interdisciplinary Handbooks: Gender, v2: Nature*, ed. I. van der Tuin, 57–71. New York, NY: MacMillan.
- Martusewicz, Rebecca, Edmundson, Jeff and Lupinacci, John. 2015. *EcoJustice Education Toward Diverse Democratic and Sustainable Communities*, 2nd ed. New York & London: Routledge.
- Matthies, Aila-Leena & Närhi, Kati & Ward, Dave (eds.). 2001. *Eco-social Approach in Social Work*. University of Jyväskylä. <https://www.jyu.fi/hytk/fi/laitokset/yfi/tutkimus/sophi/51-75/sophi58>
- Merchant, Carolyn. 1983. *The death of nature Women ecology and the scientific revolution*. San Francisco: Harper & Row.
- Morton, Timothy. 2016. *Dark Ecology: For a Logic of Future Coexistence*. New York: Columbia University Press.
- Naess, Arne. 2016. *Ecology of Wisdom*, Edited and translated by A. Drengson. UK: Penguin Books.
- Noddigns, Nel. 1986. *Caring A feminine approach to ethics & moral education*. Berkeley: University of California Press.
- Närhi, Kati. 2004. *The eco-social approach in social work and the challenge of expertise of social work*. University of Jyväskylä. <https://jyx.jyu.fi/bitstream/handle/123456789/13326/9513918343.pdf?sequence=1&isAllowed=y>
- Oliver, Kelly. 2007. The power of ignorance. In *Race and epistemologies of ignorance*, ed. Shannon Sullivan and Nancy Tuana. Albany: State university of New York Press.



- Oliver, Kelly. 2004. Ecological subjectivity: Merleau-Ponty and a vision of ethics. *Studies in practical philosophy* 4 (1): 102–125.
- Opielka, Michael. 1994. Social Ecological Work and Planning - Remarks on a Social-Ecological Theory of Action (SET). Paper presented at the University of Jyväskylä Department of Social Work (Finland) on September, 21st, 1994 <http://www.krepublishers.com/06-Special%20Volume-Journal/JHE-00-Special%20Volumes/JHE-10-Hum-Ecol-New-Mill-Web/JHE-SI-10-03-025-033-Opielka-M/JHE-SI-10-03-025-033-Opielka-M-Text.pdf>
- Orr, David. 1994. *Earth in mind. On education, environment and the human prospect*. Washington: Island press.
- Orr, David. 1992. *Ecological Literacy. Education and the Transition to a Postmodern World*. Albany: State University of New York Press.
- Parviainen, Jaana. & Lahikainen, Lauri. 2019. Negative expertise in conditions of manufactured ignorance: epistemic strategies, virtues and skills. *Synthese* 1–19.
- Pico Della Mirandola, Giovanni. [1486]1999. *Oration on the Dignity of Man*. Trans. & ed. by T. Martikainen. Jyväskylä: Atena kustannus.
- Plumwood, Val. 2002. *Environmental Culture: The ecological crisis of reason*. London: Routledge.
- Plumwood, Val. 1993. *Feminism and the Mastery of Nature*. London: Routledge.
- Plumwood, Val. 1991. Nature, self and gender: Feminism, environmental philosophy and the critique of rationalism. *Hypatia* 6 (1): 3–27.
- POPS 2014. Finnish core curriculum of 2014. [https://www.oph.fi/sites/default/files/documents/perusopetuksen\\_opetussuunnitelman\\_perusteet\\_2014.pdf](https://www.oph.fi/sites/default/files/documents/perusopetuksen_opetussuunnitelman_perusteet_2014.pdf)
- Pulkki, Jani. 2020. Varsinainen minä ja henkisyys ekososiaalisen kasvatustilanteiden näkökulmasta. *Kasvatus* 51 (3): 302–316.
- Pulkki, Jani, Pulkki, Jutta and Vadén, Tere. 2019. Ekoterveyskasvatuksen luonnos. *Alue ja ympäristö* 48(2), 69–82. <https://aluejaymparisto.journal.fi/article/view/83089>
- Pulkki, Jani. 2016. Competitive Education Harms Moral Growth. In *Encyclopedia of Educational Philosophy and Theory*, ed. M. Peters. Springer: Singapore.
- Pulkki, Jani, Bo. Dahlin, and Värri. Veli-Matti. 2017. Environmental Education as a Lived-Body Practice? A Contemplative Pedagogy Perspective. *Journal of Philosophy of Education* 50 (2): 214–229.
- Pulkki, Jani, Antti Saari, and Bo. Dahlin. 2015. Contemplative Pedagogy and Bodily Ethics. *Other Education: The Journal of Educational Alternatives* 4 (1): 33–51.
- Pulkkinen, Tuija. 2000. *Postmodern and Political Agency*. University of Jyväskylä. [https://jyx.jyu.fi/bitstream/handle/123456789/47912/SoPhi50\\_978-951-39-6491-7.pdf](https://jyx.jyu.fi/bitstream/handle/123456789/47912/SoPhi50_978-951-39-6491-7.pdf)
- Riggio, Adam. 2015. *Ecology, Ethics and the Future of Humanity*. New York: Palgrave Macmillan.
- Roslund, Marja I., Puhakka, Riikka, Grönroos, Mira, Nurminen, Noora, Oikarinen, Sami, Gazali, Ahmad M., Cinek, Ondřej, Kramná, Lenka, Siter, Nathan, Vari, Heli K., Soininen, Laura, Parajuli, Anirudra, Rajaniemi Juho, Kinnunen, Tuure, Laitinen, Olli H., Hyöty, Heikki, Sinkkonen, Aki, ADELE research group. 2020. Biodiversity intervention enhances immune regulation and health-associated commensal microbiota among daycare children. *Environmental studies* 6 (42).
- Roszak, Theodor. 1992. *In The Voice of the Earth. An Exploration of Ecopsychology*, New York: Simon & Schuster.
- Salonen, Arto, and Marjatta Bardy. 2015. Ekososiaalinen sivistys herättää luottamusta tulevaisuuteen. *Aikuiskasvatus* 35 (1): 4–15.
- Salonen, Arto. 2014. An Ecosocial Approach in Education. In *Schooling for Sustainable Development: Concepts, Policies and Educational Experiences at the End of the UN Decade of Education for Sustainable Development*, ed. Rolf Jucker and Reiner Mathar. Berlin-Heidelberg: Springer.
- Scheiner, Samuel, Michael Willig. 2008. A general theory of ecology. *Theoretical ecology* 1: 21–28.
- Seed, John, Joanna Macy, Pat Fleming, and Arne Naess. 1988. *Thinking like a mountain: Towards a council of all beings*. Philadelphia: New Society Publishers.
- Sessions, Robert. 1991. Deep ecology versus ecofeminism: Healthy differences of incompatible philosophies? *Hypatia* 6 (1): 90–107.
- Sewall, Laura. 1995. The Skill of Ecological Perception. In *Ecopsychology Restoring the Earth Healing the Mind*, ed. T. Roszak, M.A. Gomes, and A.D. Kanner, 201–215. San Francisco: Sierra Club Books.
- Siljander, Pauli, and Ari Sutinen. 2012. Introduction. In *Theories of Bildung and Growth Connections and Controversies Between Continental Educational Thinking and American Pragmatism*, ed. Pauli Siljander, Ari Kivelä, and Ari Sutinen, 1–18. Rotterdam: Sense Publishers.
- Strumse, Einar. 2007. The ecological self: Psychological perspective on anthropogenic environmental change. *European journal of science and theology* 3 (2): 7–12.

- Taylor, Carol, and A. . 2016. Is Posthuman Bildung Possible? Reclaiming the Promise of Bildung for contemporary Higher Education. *Higher Education* 74 (3): 419–435.
- Taylor, Paul, and W. . 1997. The ethics of respect for nature. In *Ympäristöfilosofia Kirjoituksia ympäristönsuojelun eettisistä perusteista*, ed. M. Oksanen and M. Rauhala-Hayes. Helsinki: Gaudeamus.
- The Crex Crex Collective. 2018. On education. In *Wild pedagogies Touchtones for Re-negotiating education and the environmental in the anthropocene*, ed. Bob Jickling, Sean Blenkinsop, Nora Timmerman, and Michael De Danann. Sitka-Sage, Cham: Palgrave Macmillan.
- Townley, Cynthia. 2006. Towards a reevaluation of ignorance. *Hypatia a journal of feminist philosophy*. 21 (3): 37–55.
- Wang, Chia-Ling. 2016. Towards Self-Realization: Exploring the ecological self for education. *Educational philosophy and Theory*. 48 (12): 1256–1265.
- Waks, Leonard J. 2018. *Humility in teaching*. *Educational Theory* 68 (4–5): 427–442.
- White, Lynn Jr. 1997. The historical roots of our ecological crisis. In M. Oksanen & M. Rauhala-Hayes (toim.) *Ympäristöfilosofia. Kirjoituksia ympäristönsuojelun eettisistä perusteista*. Helsinki: Gaudeamus. 21–33.
- Wilenius, Reijo. 1987. *Kasvatuksen ehdot. Kasvatusfilosofian luonnos*. Jyväskylä: Atena.

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