



Article

Posthumanist Approach To Human/Child-Centred Education

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Abstract

The authors of the paper rethink posthumanism in education and formulate the research problem and question: which paradigms should be prioritized nowadays and in the future if we to criticise the human/child-centred paradigm? How do we move from one paradigm of education to another? We analyse the argument for transforming the educational paradigm in the posthuman perspective, which could be treated as new methodology for the development of education. We then present the possibility of taking a post-anthropocentric course regarding the treatment of other species and technologies in the Anthropocene times, and finally, the curriculum research.

Keywords

Posthumanism, Anthropocene, non-human, education, curriculum.

Introduction

A list of modern-day issues has captivated the public discourse – questions related to consumerism, the development of new technologies, new methods of communication, virtual reality, as well as the uncertainty and high speed of changes they bring, and, on the other hand, the very general and global considerations regarding the future of planet Earth and the question of how we imagine people in the future. This brings us to the question of educating the said people. In other words, the challenge lies in preserving nature within a cultural environment seized by technology. There is, then, an emergence of issues of assimilating technology and its development in education: how much is technology ought to be used and trusted, and how much should it be used to create and recreate. At the same time, these are questions related to the relationships shared between nature and culture, culture and technology, as well as technology and nature. The development of education is dependent on these relationships as well as on the role of the human within these relationships.

Meanwhile most countries have a humanistic and child-centred education, which is being permanently renewed, claiming that a certain issue persists – that the humanistic approach and child-centred access to education are not developed well enough. Thousands of specialists in the world spend their efforts on retaining it as the axis of education, fixing it in the documents and the praxis, and, suddenly, posthumanists decide to question its essence. What is wrong with humanistic education and child-centred education?

The works published by Haraway (1991) and Braidotti (2013, 2014) show us the tragedy of our epoch, since the age the *Vitruvian Man* by Leonardo da Vinci became a symbol of our times. A strong, white Man has great power and dominates the Earth. He works for economic and cultural progress and the welfare of the state, while planet Earth is at risk. Moreover, he uses cruel methods

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to solve problems among nations and states as well as problems with animals, prioritising a preferred nation, species, and culture. That is why posthumanists suggest removing man from the center of the world. Consequently, posthumanist philosophers of education discuss the ways of removing the humanistic paradigm and child-centered education.

Currently, the number of education theoreticians who work within the posthumanist perspective is increasing rapidly, especially led by Snaza (2014, 2018). They are united by the fact that they all pay a lot of attention to the philosophy of Deleuze and Guattari (1987, 1994), Braidotti (2013), Haraway (1991), and Latour (2005), whose works, alongside those of other authors, form the central axis. A great task, according to Braidotti, now falls upon the humanities and their teaching, the interference of which into the public and academic discourse of economic and technological knowing and development can greatly adjust the progress that is now becoming the scourge of both the planet and humankind. So we see an emergence of a new, refreshing, positive attitude that is less deprecative and not pugnacious; instead, it creates and offers means of creation to others.

Following some philosophers of education (Snaza, 2014, 2018; Cole, 2013, 2014; Wallin, 2010; Jagodzinski (2018, 2019), the authors of the paper do not suggest to change one paradigm radically for the other, but to find a way for a soft transition. In other words – to treat posthumanism as a continuation of human studies when we have found ourselves already living in the Anthropocene and to emphasize our living with.

Thus we formulate our research problem and question: which paradigms should be prioritized nowadays and in the future if we criticise the human/child-centred paradigm? Which approach do we choose – content- or competence-centred? Or perhaps some other? Which paradigm now lays as the foundation in education policy and curriculum and which should be laid? And finally, how do we move from one paradigm of education to another? Within the context of the development of new technologies in all fields of life, another question arises – what place will the natural sciences occupy, when, on the one hand, there is a call for the demand for breakthroughs of education in the natural sciences, and, on the other, it serves as a reflection steeped in human power-developing capitalism, serving exceptionally human needs in industrialized capitalist countries.

To answer all these questions, we analyse the argument for transforming the educational paradigm in the posthuman perspective, which could be treated as new methodology for the development of education for the future. We then present the possibility of taking a post-anthropocentric course regarding the treatment of other species and technologies in the Anthropocene times, and finally, we present the curriculum research. The curriculum research case is only a singular example from the many that are oriented toward STEM teaching and are taken from Lithuanian national education documents. Its reflection does not pretend to give answers to all questions and problems related to posthumanism and Anthropocene or universalize the situation. It is an explication of the authors' thoughts, denoting some arguments to support them. The results and answers stemming from the authors' investigation are not to put somebody or something in the centre of the educational paradigm, but to suggest a new one, based on a decentralized network.

Rethinking Humanism in Education: Posthumanist Perspective

Dewey's (1990, 1997) educational philosophy with its model of child-centred education was a huge input into the development of humanism, which is rooted in Renaissance philosophy and the Enlightenment ideas. He rethought cultural and social context for a better understanding of the already popular humanistic paradigm in education, stemming from the ideas of Jean Jacques Rousseau, who prioritized a natural environment. A humanistic approach was also developed by some psychologists, such as Maslow (1997) and Rogers (1961), during or after The Second World War, describing how important self-expression and the creation of the self is for an individual. Many

years past – almost one century after Dewey’s writings and more than half after Maslow’s ideas – one sees conditions to have changed a lot. The Second World War and the post-war period (including the Nazi labour camps and Soviet gulags), in Braidotti’s (2013) words, absolutely compromised the human as the main and cleverest species of the world. The first to emerge were new humanism and especially antihumanism, after which the much softer movements of posthumanism and neohumanism followed. In variations of new humanism critical pedagogy was and still is rather strong and dominated, fighting for social justice and giving some insights for posthumanism. Posthumanism and neohumanism are both similarly concerned with the human and its relationship with planet Earth, yet both are marked with their differences. Posthumanism is oriented toward rethinking how humans may cultivate a closer relationship with nature and other animal species and is related to new materialism (Braidotti, 2013, Haraway, 2016). Neohumanism is concerned about the place of spirituality in the relationship between the human and nature, both animate and inanimate (Kesson, 2020, Sarkar, 2012). In Sarkar’s (2012, p. 18) words, “[t]his Neohumanism will elevate humanism to universalism, the cult of love for all created beings of this universe.”

We focus our attention on the posthumanist train of thought as a combination of critique of anthropocentrism and Cartesian dualism, which take root in Enlightenment-era humanism. The traditional concept regarding humanism, today requires a revision – it must be supplemented or updated. That is already done with Dewey’s philosophy, which is treated as very important for understanding the curriculum and experiential learning in a new way in postmodern times, with a distance from the anthropocentric perspective (Semetsky, 2006). Yet this is not the problem of the scholars who had discussed humanism – it is a critique of the world wherein man and only man was at its centre. As theorized by Pedersen (2004), using the Causal Layered Analysis (as a technique for futures researchers) deconstruction of human-centeredness in the curricula and disclosure of hierarchical speciesism, as well as human-animal binaries, might create preferred futures.

The other challenge for humanism appeared with an increase of nature’s pollution and climate change, which is related to the unlimited human use of technology, consumerism, the progress of technological inventions, forgetting that human well-being depends on the natural environment and the safety of other species. This new perspective, the representatives of which are the posthumanists (Hayles, 1999; Haraway, 1991; Braidotti, 1913), happens to be at the centre of discussions. It is discussed how the role of the human can be rethought – the individual who has an equal set of rights regardless of where on Earth one lives and of what gender, race, and nationality one is. Or are they transformed into a cyborg? But most importantly, a question is asked of whether the human can be so selfishly distinguished from among the animate beings, justified by the notion that it is the smartest creature. Without a doubt, the former unique values of the human, as well as the loss of identity (by the means of linking identity with other life forms as well as with technology), are a huge challenge for the educational field, one that is already being tackled by education researchers both by testing certain mechanisms in empirical studies and by means of educational practice.

It is evident that the growth of a new “brand” in education – the STEM (science, technology engineering, mathematic) field, and, on the other hand, the variance in how one establishes a connection between education, culture, and nature, are all complicated by the digital world and information technology, which infringe upon the cultural field and influence education the most. On one hand, it is obvious that STEM is a neoliberal project, with a vision of unlimited growth, competitive and individualistic values, on the other, as argued by Smith and Watson (2018), STEM is firmly located within a techno-optimist future - an idea that innovations will save us from the grim forecasts of the Anthropocene. The “green” technologies, biotechnologies, gene editing, and other techno-fixes present a rather comforting, conventional idea that the problem is out there, distinct from one’s self. Combining neoliberal free market ideology with a dogmatic techno-

scientific salvationism will hardly provide the answers to existential questions of the 21st century. Referring to Haraway (1991) and Alaimo (2012) adds that focusing on technology masks asymmetrical power relations, political differences, and cultural values, because it depends on an epistemology that divides subject from object, knower from known.

In this way, we are following the abovementioned researchers, especially Braidotti (2013), who stress that precisely the humanitarian sciences and their reinforcement in education may have crucial impact on adjusting the economic, natural-scientific and technological development of the world. However, the significance of humanitarian disciplines is entirely different from that of humanism as a philosophy and ideology – especially when it is actively implemented in education.

By critiquing the anthropocentric illusion of separateness posthumanists point to the countless acts of discrimination against humans that historically have been excluded from the category of “human” (enslaved peoples, “barbarians,” Jews, etc.). The asymmetrical power relations hiding in hierarchical anthropocentrism result into a blindness not only to industrialized non-human animal killings, the sixth species extinction, and the climate crisis, but also exploitation, racism, sexism, ethnocentrism, and violence against humans pushed into the category of less-than-human based on their race, ethnicity, gender, sexual identity, class and education, health and able-bodiedness, etc. The posthumanistic school of thought claims to enable a leap toward a more complex understanding of what it means to be human, an eco-philosophy of multiple belongings i.e., a sense of inter-connection between self and others, necessarily including the non-human others by removing the obstacle of self-centred individualism (Braidotti, 2013).

Understandably, the political domain’s approval can hardly be expected for the implementation of non-human centred philosophy in education; therefore, we delve into how micropolitics can neither be adverse to the official policy nor directly follow it. A completely new perspective is opening by the representatives of which are Deleuze and Guattari (1987, 1994), and Braidotti (2013), as well as their adherents in education: Wallin (2010, 2014), Semetsky (2006), Jagodzinski (2010, 2018, 2019), Cole (2013, 2014). Especially in the times when teaching material is not a set of ready-made information, but in many cases a flow of information, another peculiar task is to be ready for the perception of this flow, for new inventions and experiments to take place with respect to the knowledge that has been gathered and transmitted for many years. The usage of new concepts, which mostly came from Deleuzeoguattarian vocabulary (rhizome, transversality, nomad, becoming, in-betweenness, schizoanalysis, affect, people-yet-to-come etc.) and the posthumanist vocabulary (anthropocene, anthropocentrism, non-human, more than human) are significant for the new paradigmatic turn in education, which also precludes a live curriculum instead of a planned curriculum (Wallin, 2010). The arrival of this usage is meant to not only change the way we think but to also decode education.

Will the school and education be able to recode, to reboot their activities, or will they again be beaten by the capitalistic system, based on standards and competition? How much effort ought to be put in so as to open our own activities to innovations and change the way of positivist thinking and the established codes, traditionally applied for neoliberal purposes, and to proceed to a new reasoning method – one that is responsible and based on creativity and novelty, escaping the capitalist reproduction of what is most marketable with no regard to sustainability? Moreover, if attention is paid to sustainability, then the question of sustainability for who arises with it. Do we wish human instrumentalism to be sustainable? Or maybe the life of all interrelated inhabitants of this planet? This is an uncomfortable question for many. By attempting to frame future models, scholars create different scenarios of education, both utopian and dystopian (Kesson, 2020, White, 2020, Ramos, 2020). Four future scenarios were envisioned in *Back to the Future of Education* on the OECD platform (OECD, 2020). The UNESCO platform has published a recommendatory paper on future education – *Learning to become with the World: Education for future survival* (2020). We

can clearly state that to escape the stratification, marketization, and instrumentalization of the human and to create a new future, educationalists may have to be open to new visions and a new way of thinking and behaviour. Following the theoreticians of Anthropocene and according to some scenarios, educationalists must be receptive to random discoveries and connections between heterogeneous elements: human and non-human, material and virtual, potential and actual, as well as learn to stand on the border of the investigational field instead of keeping themselves at its centre.

Some scholars suggest the assemblage (Deleuze & Guattari, 1987) as the main concept for understanding the organization of an interrelationship, when others suggest the actor-network theory *ANT* (Latour 2005), which also stresses the relationship, while both treat the arrangement of elements differently. The first one is understood as opened and elastic, while the second one closed, but less or more intensive. Philosophers of education follow one or another understanding of the arrangement of agents, very often coming to a new one, originated in Barad's (2003) investigations. In Barad's viewpoint, one could recognize greater attention being paid to the agent, and in that way she proposes a different understanding of the interactions among human and nonhuman in the apparatus, compared to Deleuze and Guattari's (1987) assemblages, mostly based on a changeable rhythmic line, and Latour's (1996, 2005) actor-network theory. This is because Barad (2003) defines agency as a relationship, not as any particular feature, while the apparatus and assemblages in her view are material-discursive, a dynamic for grouping agencies, and in that way are only a condition of possibility. Emphasizing intra-activity as activity between the human and non-human, her theory has been named as agential realism.

The concept of "people-yet-to-come" (Hroch, 2014; Wallin, 2014) enters the agenda; this concept might be used to denote individuals with a new consciousness: the children and adolescents for educating whom we must properly prepare. The Deleuzoguattarian "people-yet-to-come" refers to those whom we want to see in the future as well as who are among us already, but they think and behave in a new way (Hroch, 2014). In the perspective of the Anthropocene, they are people who know how to change their behaviour not only towards human beings, but other species also, doing that and understanding how important it is to take responsibility in this new epoch. Perhaps a new perspective is not easily adaptable in some localities and cultural contexts; nevertheless, by listening to what the world's theoreticians are saying, we might turn toward our own field – toward our own "people-yet-to-come." It is known that they first come through education, and the gates of variety and experimentation should be opened for them.

Living in the Anthropocene: Taking Responsibility for the Future

A great deal of discussion has appeared concerning the understanding of the Anthropocene as a time that requires an absolutely different approach to understanding humanity, its habits, its culture and art, and consequently a different education. The Anthropocene is an epoch in which the effect of human behaviour on planet Earth has become absolutely hegemonic and irreversible. The name Anthropocene was suggested in 2000 (Crutzen, Stoermer, 2000), although the time when this period started is still a matter of discussion. This is the epoch in which there is an evident change in the planet's environment, and the deterioration of its climate, the acidification of the ocean and loss of biodiversity, a push in uncontrolled directions, and an unnatural technological development selfishly promoting long and comfortable lives for some humans. These consequences are usually criticized as related to the capitalistic system. Theoreticians rethink the notion of a new agency "not necessarily human, but instead, the one that is at the same time human and nonhuman, organic and inorganic, historical and geological" (Parsa, 2019, p.30) and not limited to the human brain. In Colebrook's (2019) view, it is not necessary to put new period into strict frames, it is much more important to understand the situation in which we live and take responsibility. Discussing

responsibility in contemporary conditions and for the future, different approaches has been suggested for taking responsibility and being response-able. Following Snaza (2018), they can be grouped in two:

1. Reasonable decisions taking consequences into regard and a radical policy to stop unecological behaviour in the environment, to create green zones, some to protect from human and technological intrusion, and to take much stronger control.
2. Change of behaviour on the part of humans, treating the human being as only one species among many, and behaving in harmony with the rhythms of the planet, minimizing human activities and unmasking the way manipulative capitalism is turning towards ecology.

Describing this debate and different approaches to the new ethics, Clarke (2017) makes a distinction between the first one, which accepts that nature is the home of culture and is of the same essence, and the second one, which is dualistic, describing romantic wild nature and, on the other hand, human culture. In contrast to both approaches, he suggests a third way of Deleuzoguattarian flatecology, which, in his words, “places the emphasis on the continuous and immanent materiality of the world, before the formation of signifying language (i.e. ‘nature’ and ‘culture’)” (Clarke, 2017, p. 311). It presents an “anti-hierarchical plane of continuity.” Thus research in many fields has moved in the direction of ethico-onto-epistemology or agential realism, or also speculative realism, as well as flat environmental pedagogy, partly stemming from the transcendental empiricism of Deleuze and Guattari (1987).

The problems discussing in the Anthropocene are mostly related to the treatment of the human and the distinction between human and non-human (other species), but also to the human and technology and their interrelationship. While such schools of thought like transhumanism sustain a radical techno-optimism attributing to the technology God-like qualities that could enable humans to “overcome” biology, posthumanists do not feel so optimistic. Although agreeing that technology is in spiralling dynamic coevolution with human development, posthumanists, as a post-centralizing school of thought, sees technology as a trait of the human, the fetishization of which could lead to techno-reductionism (Ferrando, 2019). Emphasising that we are developing in a way that technologies are not neutral and have deep consequences, posthumanists build on the ideas of Heidegger and Haraway. Ferrando refers to Heidegger’s idea that post-WWII technologies have lost their “poiesis” (a way of revealing) and are addressed primarily from a “humanized” utilitarian point of view (Ferrando 2019). So how technologies destroyed the planet and how they can help understand it better to protect it is still actively discussed. To understand how technologies can help, we can take into account important remarks and examples of Jagodzinski (2019). First of all, he outlines that the Earth pulse has increased from 7,83 Hz to 36+ Hz, which means a very large change related to climate change (warming) (ibid., p. 167). He presents projects that illustrate other relationships in the Anthropocene: relations with technologies, with which we should have an appropriate relationship linking not only the human and non-human, but human and technological, not necessarily cyborgian, as described by Haraway in *A Cyborg Manifesto* (1991). In his Introduction to *Interrogating the Anthropocene*, Jagodzinski (2018) lists many creative and imaginary projects about human relations with the world of minerals as well as phenomena of nature in the mode of passive vitalism, following Colebrook. It can be becoming stone, becoming cloud or becoming water. That is also the exploration of nature intelligence. For example, Jagodzinski gives an example from Jeremijenko’s *Mussel Choir*. The art project “utilizes a ‘computer-model-based approach.’” Mussels are fitted with sensors in their shells that measure the opening and closing of the shells in reaction to the freshness and health of the water they are placed in. The data collected is then converted into sound for public display; which makes legible “‘mussel’ behaviour that is otherwise imperceptible” (Jagodzinski, 2018, p. 44). In Jagodzinski’s view, a distinction is thus

established between Anthropocene art and ecological or environmental art. The former presents difficulties as regards visual and audio representation, creating the need for technologies to collaborate in such projects. Similarly, one can understand Anthropocene pedagogy as ecological or environmental pedagogy, which is also named as more than human pedagogy and the possibilities of which foster students' attitudes and use of technologies as well as cognition in a new way. Though Kouppanou (2020) doubts the idea of a radical movement towards posthuman philosophy and the possibility to foster responsibility at the school level. In her view, the human child is not an adult human. And the problem in her view stems from the pharmacological aspect of children's agency, which she formulates in some questions: "What if our efforts to move beyond humanism always return us back to humanism? What if we admitted that our educational agendas – always coming from adult human beings – reinstate human agency and an ageist bias that reconfigures children's agency as hope? What if children denied this agency? What if they denied to be the hope of humanity? What if against any effort to sketch a humanist or posthumanist agency for them, children's agency will remain pharmacologically ambivalent, singular in this way? What then?" (2020, p. 15).

The *pharmacological effect* was named as the main pattern of the nowadays youth generation ten years ago by Stiegler (2010) in *Taking Care of Youth and the Generations*. "The great question of the twenty-first century will be finding the way to abandon this way of life and to invent new modalities of non-inhuman existence within societies that have become thoroughly technological – modalities that are less toxic, more useful to a non-inhumanity that has become a global community in which isolation is impossible..." (ibid., p. 183). Stiegler, who developed the idea of the pharmacological contemporary situation and the individuation of technologies, demonstrated what it means to live in this society, to be part of it, to use the surroundings and to understand that humans use their technological surroundings to produce technological, commercial, and consumer skills. In accordance with Stiegler, the human becomes the inhuman step by step, by changing human memory, attention, and values. We may therefore suppose that the invention of new modalities should absolutely change human life, erasing human individualities and identities in the individuation of technologies and at the same time trying to keep the human from becoming this inhuman. Stiegler still believes that we, humans, can control and balance being between nature and culture, which is why some scholars criticize Stiegler's philosophy as contradictory, especially regarding the education of the next generations (Bradley, 2015; Kouppanou, 2015). The question of responsibility for the future still has not received a clear answer – why and how should it be taken in the event that a human minimizes its power and influence over nature? During the international conference "Reimagining the Human" (2020), well-known contemporary philosopher Malabou, given the question of "responsibility," answered that the concept of responsibility must first of all be reconsidered should such a new situation arise. In other words, the first task is to revise the concepts that we use for cognition and communication. The idea is that the educational field, following a philosophical direction and novel concepts, has to begin changing its thinking scheme and afterward work on the creation of new educational content, values, and behavior; this idea is also mentioned by some philosophers of education (Snaza, 2018, Renshaw, 2021).

Why Must We Shift the Curriculum to a New Paradigm? Lithuanian Example

We started to investigate the educational paradigm, especially the possibility to shift from the old paradigm to a new one, or at least to subtly mix both, in that way ensuring a not-so-painful transformation of educational theory and practise. It is evident that the importance of humanism and child-centered education is still on the agenda of the Lithuanian education policy – the home country of the paper's authors. We can find this in the main state documents on the matter: *The Law*

on Education 2011/2017, *The Conception of a Good School* 2016, *State Education Strategy 2013–2022*, *The Guidelines for the Change of General Education Schools* 2017, *Code of Ethics for Educators* 2019. They are totally oriented toward humans and pupils, without a single word about nature and without acknowledging the multiple interrelations of human, nonhuman, and more than human beings. As if we are separated, and as if our survival does not depend on the survival of nonhumans and more than humans.

It is said that education is based on the indisputable value of the individual (Law on Education), the *personality* instead of student or human is outlined (*The Conception of a Good School*), including cultural competencies and a creative personality and society (*State Education Strategy 2013–2022*), *competencies and mature personality* (*The Guidelines for the Change of General Education Schools*), *human, pupils*, all strictly anthropocentric (human-centred) (*Code of Ethics for Educators*). And on the contrary – many thoughts and recommendations towards cognition, development and the use of technologies for the progress of human life are presented in the documents.

As a case of a strong link between culture, technology, and nature in the educational context, we look closer into the content – the curriculum of STEM education. The globally trending STEM field by some is proclaimed as the panacea for solving global economic and ecological challenges, while others see it as a neoliberal “STEM’ification” of education that is changing the way students see and frame scientific problems, leading to a prioritization of market-driven solutions to problems of democracy and social justice (Weinstein et al., 2016). From the perspective of posthumanist thought, the strengthening of integrated science, technology, engineering and mathematics education in general schooling is riddled with internal contradictions inherent to humanist ideology. Posthumanist thinkers point to the shortcomings of human-centric ideology that gives rise to positivism, technocracy and speciesism that dismisses non-human beings and entities: animals, nature, objects, and technology (Mustola, 2018), all of which are entangled within STEM education. Posthumanists broaden the Anthropocene discussion by enriching the climate change crisis debate with socio-economic and labour relations intertwined in it and by urging to abandon the ideologemes of capitalistic consumerist ideology: individualism, universalism, and self-determinism, which breed dogmatic tendencies of domination, exploitation, and the abuses of science and technology, grounded in rationality and the illusion of separateness (Braidotti, 2013). These contradictions come out of a hierarchical human-centric paradigm and from techno-optimism, all stemming from the Enlightenment ideal that superior human rationality and intellectual progress make it possible to radically change both the human and the world using science and technology. Seeing STEM phenomenon as a continuation of Enlightenment era-thinking, we problematize it through a posthumanist lens by focusing on its anthropocentrism.

In order to reconceptualise STEM education beyond neoliberal human capital logic and draw it closer to posthumanist philosophy of holistic inter-connection, we set a goal to establish the empirical coordinates of the relationship between nature, human, and non-human animals in the map of Lithuanian STEM education. We applied a critical, posthumanism-inspired, deductive latent content analysis of the national natural science curriculum. Inspired by critical animal studies, eco-feminist and posthumanist research (Rodriguez, 2016), we asked the question: what relationship between nature, human and non-human animals is reinforced in the general curricula of Lithuanian natural sciences, in the integrated social and natural science subject “World Knowledge” (grades 1–4), as described in the general curriculum for primary and lower secondary education (PPUBP, 2008). Themes and categories used in the analysis can be explained as ranging along the continuum of anthropocentric representations at one end, and non-anthropocentric representations at the other. The human-centric side includes categories of utilitarianism and instrumentalism, speciesism and human exceptionalism, also reductionism; on the other side of the spectrum, the non-

anthropocentric categories include zoocentrism, biocentrism and ecocentrism (holism, eco-egalitarianism).

The analysis of the program revealed that most references to the animal-nature-human relationships are represented as various degrees of anthropocentrism:

1. Utilitarian / Instrumental: nature and other species have value mainly as a resource for humans; nature is protected for instrumental benefits to man (scientific, pragmatic, psychological satisfaction, etc.).
2. Exceptionalist / Spieciest: Humans are treated as separate and distant from nature or other species, while non-human animals are considered as inferior “others” that have no intrinsic value or have a negative impact on the human community (e.g., “source of danger”).
3. Reductionist: non-human animals are represented as having the ability to live a complex socio-emotional life, all non-human animals are portrayed the same, regardless of their biological characteristics or abilities.

Most frequent representations of animal-nature-human relationships are utilitarian and/or instrumental. In the program guidelines for student achievement, this usually manifests itself as valuing nature and other animals as a resource, object of research, psychological satisfaction, and a future exploitation investment. All, in one way or another, portray nature or non-human animals as a resource to be exploited, while humans are portrayed as the owners of this “resource”:

Use natural goods sparingly and responsibly. (PPUBP, 2008, p. 233: 1034).

[...] explains how people behaved (ate, dressed, defended from the cold) in ancient times and how their occupations and crafts changed after work tools were invented – a heap, a plough, a spear, etc., when the animals were domesticated. (PPUBP, 2008, p. 239: 1501).

In the second quote, words referring to non-human animals follow immediately after the named tools. It could be argued that in this way, non-human animals are represented to be of the same value as an object – a tool to be used by human. A parallel could be drawn between this representation of non-human animals and slavery (historically enslaved humans were referred to as “living tools”). One must note that while Latour’s Actor Network Theory and the new materialisms do consider a flat ontology granting non-humans agency, this particular example reflects the hierarchical relation with humans on one side, and other animals / non-living objects on the other, thus perpetuating hierarchical binaries of the user and the used, the subject and object. If we want to step out from of the traditional classification and stress of “being in a network” or an assemblage, which is offered by posthumanists, it can be settled as it is, but necessarily explaining the context. This sets a rather difficult task for the authors / producers of the curriculum, because new philosophical views suggest the creation of different narratives about the animate and inanimate world. In the posthumanist vision, the human, non-human, and more-than human could be located in a single horizontal line, on one network or an assemblage, as intra-acting agents, but for this a different discourse and articulation of the tasks for students is needed. To paraphrase Haraway (2019): for earthly survival, we need different kinds of stories.

In the next quote, the value of non-human animals and the natural environment is presented to primary school students as an object of scientific research, observation, testing, or grouping. According to Rodriguez (2016), Pedersen (2010), Bekoff (2008), and Nibert (2003), this kind of instrumental representation could encourage further exploitation or repressive actions:

Respect and protect life: During the tasks, [students] learn to group objects and objects of nature, e.g., according to the *purpose*, external or other features, etc. (PPUBP, 2008, p. 230: 2250; emphasis added by the authors).

Human interaction with nature or other animals throughout the program is portrayed in a highly narrow way – mainly in the spirit of “we” study “them.” It is also hard to understand how exactly

schoolchildren should develop the value of respecting and protecting life by grouping “objects of nature” by purpose. In other cases, a different source of its instrumental value is presupposed: enjoyment, admiration, aesthetic satisfaction, or fetishization. “To take an interest in the natural environment as an inexhaustible source of joy and cognition” (PPUBP, 2008, p. 231: 110).

The entire program has no mention of the environmental protection, harm, or pollution reduction to nature or non-human animals as an end in itself, i.e., because nature or other animals are inherently valuable. On the contrary, all calls for nature protection are accompanied by nature/other animal representation as an object of use and/or exploitation. This is often expressed using such words as “preserve,” “conserve,” or accompanied by phrases “use smarter,” “use cleaner,” “use more responsible,” “use more economically,” “use more rationally.” The formulations are dominated by the verb “to use”:

Feel responsible for the rational use of natural resources. (PPUBP, 2008, p. 227: 745).

To protect, care for and of everything alive: 5.11. Explain what benefits one or another domestic animal or bird provides to humans. (PPUBP, 2008, p. 231: 1440).

It is difficult to understand how the aim to develop the values and attitude “to protect, care for and of everything alive” is nurtured by explaining the benefits that animals or birds bring to man. It should be considered whether these kinds of values and attitudes could not be developed more effectively by teaching to bandage the wing of an injured bird or to care for a sick pet.

The second most common category of anthropocentrism in the program after instrumentalism is human exceptionalism and spieciesm. Usually this comes in the form of the designation of the different roles of human animals; the removal of human animals from the examples that describe the basic functions of organisms, or the removal of other animals when describing complex social or physical characteristics of the organisms, and, in the wording and phrasing of human animals, rendering them as separated from other animals.

In the first quote below, the human role is depicted as that of a “guardian,” “defender,” “manager,” while other animals are depicted as “protected,” “weak,” and “small” entities, suggesting a paternalistic asymmetrical power relation:

5.10. Learning to care for pets; the attitude of caring for the *smaller and weaker* is developed. (PPUBP, 2008, p. 231: 2101; emphasis added by the authors).

5.6. Understand and explain the importance of the adaptation of living organisms to the environment. Discover and illustrate with examples how plants and animals adapt their body structure to living conditions (e.g. rodents, predators, herbivores have different teeth; bird beaks have different shapes, legs have different structures). (PPUBP, 2008, p. 246: 1467).

In the second example, human exceptionalism manifests itself through elimination. Human animals are removed from some content locations, while non-human animals are removed from others. These eliminations are not accidental. On the contrary, there is a tendency to eliminate humans when describing the basic functions of organisms, and to eliminate other animals when describing the complex needs of organisms. When it comes to “adaptation,” “survival,” “reaction,” the examples only mention non-human animals, and when it comes to “nutrition,” “care,” “vulnerability,” “love,” only human animals are mentioned. In this way, students can get the impression that other animals are only reactive, adaptable, and surviving, while human animals are special, distinctive, with a completely different set of complex characteristics and needs, thus strengthening the illusion of separation.

6.11. Explain the importance of air to humans, animals, and plants. (PPUBP, 2008, p. 250: 150).

In the example above, the phrases are worded in such a way that human animals are represented as a separate category not belonging to the animal kingdom. This very common human-centered formulation could be easily fixed by adding the word “other,” e.g.: the importance of air to humans, *other* animals, and plants; or, by writing humans in brackets: e.g.: the importance of air to animals

(incl. humans) and plants.

The last category of the animal-nature-human relationship representation could be named *reductionist*. Non-human animals are represented as not having the ability to live a complex socio-emotional life; also, all non-human animals are portrayed the same, regardless of their biological characteristics or abilities.

Explain and provide examples of how some plants and animals have adapted to natural conditions, linking their adaptation to survival. (PPUBP, 2008, p. 221: 1253).

This quote illustrates how the program depicts an overly narrow spectrum of animal behaviour, not reflecting the complexity demonstrated by non-human animals. Most of the content concerning non-human animal behaviour refers to physiological characteristics, adaptation to ecosystems, or the role of the animal in food chains. As a contrasting comparison, an excerpt about the needs of human animals: “Respecting the unborn life [...] the [human] baby needs not only food, sleep, but – most importantly – the care and love of parents, siblings” (PPUBP, 2008, p. 228: 2500). This finding is consistent with that of Rodriguez (2016) who, after finding reductionist representation of animal behaviour in the Australian science curriculum, emphasizes that there is an increasing amount of empirical evidence demonstrating the resemblance of the capabilities of many animals to the capabilities of humans. The author points out that by excluding these scientific facts, on the one hand, we could be losing the opportunity to develop care and compassion for others, and on the other, reinforce the instrumental relation with animals, distancing them from us (Rodriguez, 2016, p. 1015).

An initial objective of the curriculum programme analysis was to identify what representations of human-nature-non-human animal relationships prevail in STEM education in the subject of “World Knowledge” (grades 1–4) in the Lithuanian primary education curriculum program. The findings suggest that these representations are highly anthropocentric. On the other hand, a shift toward a more balanced and holistic paradigm is conceivable. Speciest and exceptionalist phrasing and wording in the program could be easily changed by rearranging the sentences or adding a few words; sustainability and environmental protection could be interpreted through the lens of the intrinsic value of nature, as opposed to exclusively utilitarian and instrumental human endeavour. It would be mutually beneficial. This kind of unintrusive and soft shift toward a post-anthropocentric STEM education does not pose a threat or a radical paradigm shift, but at the same time changes the ontological understanding of the “self” and “other,” eroding the illusion of separateness and self-determinism inherent to humanism.

Covering the Results

It is time to take the risk of creating not only in accordance with already-established requirements but to act by inventing, transforming, and, finally, politicizing in a fresh way, unseparated from the great focus on responsibility, in other words – in a way that suggests posthumanistic orientation and responsible living in the Anthropocene. The best way to do that is by decentralizing education, but not in an institutional sense – in the sense of priorities, and to claim not the student-, the content-, or the teacher-centred education, but a no-one-centred education instead – education linking heterogeneous elements in networks. Such is a network of different elements that have their special place in education: the student, teacher, content, ideas, imagination, symbols, technologies, other species, and the flow of information. This is not to be done from one, two, or more alternatives either – the conjunctions we are looking for in this case are And, And, And, And..., as suggested by Deleuze and Parnet (1987). And if we want to keep this word, “centred,” for more pragmatic purposes – the suggestion would be to put all of these elements at the centre.

Out of all subjects taught, STEM is popularly understood as neutral and apolitical – facts

unbound by ideologized values. After this brief investigation, we are convinced that it is far from the truth. By bringing to light human exceptionalism, instrumentalism, utilitarianism, speciesism, a false binary mentality, and other manifestations of anthropocentrism in the curriculum analysis, we believe that if we set the stage for the reimagination of STEM education beyond hegemonic technocratic instrumentalism and toward posthumanist STEM education, we will empower ourselves to tell new stories. Stories that enable eco-sociosensitivity, inter-connection between the self and others, culture and nature, a conscious responsibility for all forms of life, and peaceful co-existence. As Haraway puts it, “[i]t matters which stories tell stories [...] who owns stories, who has access to whose stories, who is safe enough to tell their stories, and who lives and dies as a result” (2019, p. 565). For too long science education has repeated the story of human superiority, the story of the white men of reason and logic overcoming chaotic nature and the animal “other.” This narrative brought us not only the Anthropocene, with mass environmental destruction and species extinction on a geological scale, but it is continually used to exclude, repress, and discriminate the human population, who, as Braidotti puts it, “have not enjoyed the privileges of being considered fully human” (Braidotti and Hlavajova, 2018).

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