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Reconfiguration of Values: Posthumanist Approaches to Education for Sustainable Development in Higher Education

Brigitte Kürsteiner* and Stefanie Rinaldi**

Sustainable research into consumption habits at the University of Lausanne, the right to water at the University of Lucerne, and courses on education for sustainable development at universities of teacher education – the issue of sustainable development has reached higher education in Switzerland, as the Sustainable Development at Universities Program illustrates.¹ But what kind of sustainable development are we addressing here? And, moreover, what kind of education that promotes sustainable development?

The international concept of education for sustainable development emphasizes the importance of common principles, values and practices. It is based on the premise that if we share this common ideological basis, a big step is made towards the ideal of "sustainable development". This focus on specific principles, values and practices as well as the rationale behind them are difficult to reconcile with the idea of fostering critical thinking and transformative education.

If we move towards education for sustainable development in Higher Education, we thus need to ask which methods can support our teaching to enhance students' ability to understand and analyse global challenges of the 21st centuries, as well as contribute to transforming the societies we live in, without imposing a specific worldview. And what is the role of principles, values and practices of such teaching?

We will approach these questions by first looking at education for sustainable development as to how it is conceptualized internationally and locally, that is, in Switzerland. We will show why we are critical of certain value-based elements of these concepts and their implementation in education and how, in our view, we can ensure that we are truly "educational". We will use this starting point to sketch some ideas on how posthumanist pedagogies can help overcome these challenges by reconfiguring rather than transmitting values. We will then outline an example of our own teaching at the University of Teacher Education in Lucerne and share some of our experiences with posthumanist approaches to education.

¹ See the final report on the program: Swiss Academies of Arts and Sciences, 2017.

1. Education for sustainable development as value-based learning

Education for sustainable development garnered much attention when the United Nations Decade of Education for Sustainable Development (DESD) was launched in 2005. The Decade "aimed at integrating the principles and practices of sustainable development into all aspects of education and learning, to encourage changes in knowledge, values and attitudes with the vision of enabling a more sustainable and just society for all" (UNESCO, 2014a, p. 9,

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emphasis added). The roadmap for implementing the DESD further outlines the vision put forward by the Decade: "a world where everybody has the opportunity to benefit from education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation" (UNESCO, 2014b, p. 14, emphasis added). The use of the determinant "the" implies a series of predefined principles, practices and values that – if sufficiently assimilated – lead to a more sustainable world and "positive" transformation. The Decade was thus clearly based fixe ideas about values – although the respective values are not defined comprehensively – and grounded in the assumption that certain specific values, behaviour and lifestyles can be "learnt" so as to lead to actions towards a more sustainable life.

The role of education in promoting sustainable development has been emphasized in Target 4.7 of the Agenda 2030, which calls upon all states to "ensure that all learners acquire knowledge and skills needed to promote sustainable development" (UNGA, 2015). The Education 2030 Framework of Action holds that this aim can be achieved through a combination of education for sustainable development and global citizenship education (UNESCO, 2015, §62). Without going into the details of the debate about the commonalities and differences of these educational concepts as well as those subsumed under the heading of "global citizenship education"², it is important to note here that global citizenship education as conceptualised by UNESCO has a very strong value basis in that it is explicitly based on "universal values such as justice, equality, dignity and respect".

Looking at Switzerland, the value basis of education for sustainable development is somewhat less explicit, at least not in official policy documents. The "Lehrplan 21", the common curriculum for primary and lower secondary schools in German-speaking cantons of Switzerland, for instance, states that education for sustainable development aims at developing the competences required to understand links between different phenomena like global warming and food production, to find one's own place in society, and to become actively engaged in promoting a sustainable world (D-EDK, 2014). Nevertheless, based upon our experiences, the conviction that learners need to be brought to appreciate the "right" values and to behave and act "correctly" still prevails.

² UNESCO conceptualises global citizenship education as an umbrella concept that embraces several adjectival educations such human rights education, intercultural education, and citizenship education. Depending on the document, education for sustainable development is considered to be part of this wider framework (UNESCO, 2014c) or complementary to it (UNESCO, 2015).

So why is, in our opinion, the promotion of pre-defined values so problematic? The academic literature allows for several approaches to this question. First, based on the fact that 21st century global issues have become more and more complex and dynamic, we must approach them differently than was previously the case. Ten years ago, the climate crisis for instance was very different from what it is now – and so must be our analysis thereof and our reaction to it. A teaching approach based on pre-defined values based does not sufficiently reflect this complexity and dynamics because many global issues relate to dilemmas (not only personal but also systemic, political, material etc.) that cannot be solved through moral decisions (see below). Rather, we must understand that numerous human and non-human actors influence global phenomena and that, moreover, keep changing all the time. Consequently, existing knowledge, assumptions, values and actions must be reconfigured and developed further. Furthermore, another type of values is at stake: While in traditional education for sustainable development, values advocate agential attitudes, new approaches include values promoting relational qualities such as reconfiguring triggering relations of learners and other actors. Relational qualities act then as performative forces, such as affective interpretations on global issues.

Second, the promise of promoting critical thinking and transformation is often deceptive, because – often unconsciously – so called "adjectival educations" such as peace education, citizenship education, human rights education, but also education for sustainable development have, in fact and quite often, a paternalistic touch and make emancipatory learning difficult (Chiew, 2018; Biesta, 2013; Keet, 2012, 2015). Keet (2015) even goes so far as to say that human rights educators often choose a "declarationist" approach, where human rights are conceived of and presented as something that everyone has to strive for a principle that must not be questioned. However, critical thinking in our understanding means consequently to blur one's own boundaries of how we interpret the world, including values and norms. It includes scrutinizing all angles and edges of multiple interpretations without searching for an answer or solution right away. And it also comprises the re-configuration of our relational capacities with all actors involved in a phenomenon. An approach based on predefined values is therefore not appropriate in that it fosters boundaries and tends to perpetuate precise entities.

Third, we often observe unidimensional approaches to global phenomena, where the perspective of the "global South" and other marginalised contexts are

lacking or at least insufficiently integrated into the analysis. This could be, in our view, a sign of lacking willingness to seriously engage with other worldviews, values and experience.

Fourth, decade long scientific discourse on differences between moral judgment and moral action have dealt with the question of incongruence between the two. Kohlberg (1958; 1984) argues that moral judgment produces moral action and vice versa. Empiric research refutes this assumption (Heinrich, 2000). Heinrich (2000) finds that dilemmas or power structures often hinder individuals in exercising moral action. Thus, moral judgement is not correlatively linked to moral action. Consequently, it cannot be assumed that value-based education necessarily leads to correlated action, meaning that value-based teaching would largely miss its aim to transform. Consequently, values based teaching would not be efficient enough in transforming the learner's ability to act. A posthumanist approach thus would not ask "what is the right thing to do" but to look at the mechanisms that hinder us to act, if so. So, the learner would develop a different understanding of the world and recognize his or her entanglement and intra-dependence with the non-human world. The transformation would not be targeted towards specific actions but more holistically towards long-term engagement and decisions on different levels of life (political, economic, professional etc.).

Could these be reasons why higher education institutions do not refer to the concept of education for sustainable development – except for teacher training institutions – but rather use phrases such as "integrating" or "mainstreaming" sustainable development? In our view, education for sustainable development is not bad or wrong in itself. On the contrary, we cannot avoid addressing important global challenges in education. But education must be truly educational in the klafkian sense and be built on the specific, contextual experience of learners. Posthumanist approaches have the potential to contribute to such an education and facilitate tackling key questions of our times by reconfiguring values and open spaces for investigation, innovation and the differencing of viewpoints, among others.

2. Posthumanist reconfigurings

The posthumanist approach contributes to the above-mentioned problems because it provides relevant critical lenses and productive alternatives to established approaches. If we see global issues as something that cannot be solved by scientific information and rationality, knowledge acquisition and targeted moral

education, we must focus on individual processes and work with real tensions arising from experiences. For instance, for decades research on mobility learning of students spending a semester abroad focused on effects of this experience on intercultural competence. However, no clear and sound correlation could be shown in reality (Salisbury, An & Pascarella 2013; Forsey, Broomhall & Davis 2012; Ecke 2014 and others). This is why we started looking at the learning processes of students, situations that really triggered their learning, and the subsequent learning outcomes. Whereas they learned very important things, in many cases the learning outcomes did not correspond to what was hoped or expected, that is intercultural competence. This is how we envisage teaching and learning: It is not about teaching to achieve a specific learning outcome, but about an individual process initiated by real, personally experienced and unpredictable tensions and trigger situations. Our task then is to support student in working with these tensions and triggers and in exploring what they do to him or her.

In the following, we present four aspects of reconfiguring education for sustainable development, which we find crucial for developing a concept that offers transforming qualities to teaching and learning towards a more sustainable future: 1) Content-based critique; 2) Considerations about mechanisms of change and mutation; 3) Pedagogical considerations; 4) Leaning and teaching propositions. Each of the aspects focuses on specific questions relevant for educating sustainable development issues. The content-based critique focuses on human-nature relations; mechanisms of change and mutation consider subjective identity development; pedagogical considerations take into account two operators in order to redefine teaching and learning settings; learning and teaching propositions offer the basis for planning and designing teaching and learning settings.

2.1. Human-nature relations and posthumanist critique

One of the central points of critical posthumanism is its call for decentering the human. This call is based on a criticism of humanism, which is as old as humanism itself. This criticism addresses several questions that are relevant for education for sustainable development because they tackle human-nature relations. Among others, humanist views are criticized for their hierarchical nature in that humans are seen as the supreme beings on the planet, superior to all other beings (Baab 2013, 108f.). In this view, the unique human mind becomes the central value for all existing entities. This hierarchical view is linked to another point of criticism towards humanism, the dualism of the human-nature divide. *Humanitas* (rationality, love, justice) and *animalitas* (drive,

instinct, bestiality) are clearly separated and exiled in their respective territorialized region, the human on the one hand, nature on the other. Philosophers like Stirner and Schopenhauer, criticizing this divide, pleaded instead for a third dimension that integrates the two by anchoring the human decision in the natural world (Baab, 2013, 110).

Regarding its implications on debates on sustainability, this hierarchical view allows to sustain the idea of a right of human control over nature and an exacting attitude that degrades nature to being a deliverer of goods and resources. In both education and politics this attitude can imply perspectives like categorizing species into those that are worthy of protection as they stick out because of their rareness, profitability, utility, cuteness, and so on, and those not worthy of protection. For instance, plants and animals are not seen as having a right to exist on its own. In education, the issue of protection is usually linked to arguments of utility or profitability. The human-nature divide on the other hand results from lack of understanding of how humans are entangled with the non-human world and that their bodily (natural) existence is intra-connected with mind and environmental surroundings at the same time. By decentering the human and by abandoning binary thinking, posthumanist theory tries to redefine the understanding of the relation between human and nature (and all other beings). The human relation to the world is described as a multilateral and reciprocal network of entangled elements, human and non-human actors, which together configure the dynamic realities and phenomena of our lives.

The implications of this critique for education for sustainable development are quite obvious. A human-nature divide and a superiority approach to human-nature relations creates an environmental stewardship attitude and an undifferentiated view of the humans as the primary agents of change (Taylor 2017). By decentering the human, posthumanist approaches to education for sustainable development therefore offer the option of thinking human-nature relations in a new way. To be able to do this, binary thinking must be replaced with thinking in networks and dynamic human-non-human relations. We could call this an alliance approach as it tries to tackle sustainability issues as a reciprocal and entangled process. In education, the task will be to show students how they are entangled with their non-human world and how this world is acting upon them. Recognizing non-humans as agents equally able to act and to have a right on their own to exist changes the attitude towards nature and surroundings in general. Ideas about this entanglement

develop from first hand experiences, from mutual improvement and exchange that is from innovation. This new critical thinking provided by posthumanist theory reaches beyond pre-existing concepts, definitions and static knowledge. It explores our own conceptions of our relations with nature and the non-human world in general and offers to define this relation in a new way.

2.2. Subjective identity development

Another critical focus of posthumanism is the Cartesian dualism of human-nature divide, which separates mind and body from each other. From this point of view, the mind is distant and independent of the environment and body, which allows the human to acquire autonomy over thought and action and, as a result, to act rationally (McCormack, 2018). Awareness and self-consciousness, two capacities highly promoted in education for sustainable development, are products of this paradigm insofar as they are constructed through the abstraction of thought. Traditionally, education for sustainable development operates with some sort of enlightening paradigm of factual based rationality, acquired through scientifically proved facts and cognitive understanding, all of which is meant to lead to an action causing awareness. However, public and political discourse suggest that this might not be the case. Decades of scientific research on climate change, for instance, produced enough evidence that climate change is due to human action and a reality. Nevertheless, actions of individuals, politics, institutions, economy and so on do not (yet) work seriously and effectively towards the rationally appropriate end. In his book "Why we disagree about climate change", Mike Hulme, a geographer and decade-long researcher on climate change, develops this argument against the idea of individuals as the major agents of change. Individual action is mostly not exclusively based on rationality, precisely because this rationality does not exist independently of the material world. Fichter & Clauser (2013) demonstrated in their book about diffusion pathways of "green" innovations that successful innovation is linked to very practical needs of individuals and the degree of material operationalization. E-vehicles, for instance, were not quickly diffused because of a lack of charging infrastructure, a non-human actor in this phenomenon, and not the lack of will or insight of consumers. And we all know from personal experience how large the gap between knowing and acting can be when we think about air travels.

This problem could be called the "entanglement problem", stressing that action is more a question of changing properties and capacities of participating (human and non-human) agents than a question

of cognition. Posthumanist approaches therefore focus on values that aim at changing properties and capacities of human and non-human agents in the network constituting a phenomenon. Consequently, we must look differently at the development of our minds and stop seeing it as something that establishes and generates actions independently of interaction with material actors. Also, we must abandon the conviction that teaching values and norms and creating awareness and consciousness can sufficiently change the manifold and dynamic networks of human-nature relations. Manuel DeLanda's (2006) assemblage theory offers us a posthumanist model of how subjective identities are (re-)configured. We use this model to understand how pedagogical methods can be reshaped so as to support our students in reconfiguring human-nature relations.

DeLanda's theory is based on empiricist epistemology. Impressions of bodily experiences directly configure meaning in the individual. Meaning therefore is not something independent of the body and the surrounding, but anchored in the physical realities in and outside the body and experiences. Our own research on learning assemblages showed that students' meaning-making is reconfigured when motives and passions get triggered by situational experiences tied to local material realities. So, the aim of such a posthumanist pedagogical approach would be to design learning settings for students that implicate them in trigger-sensitive material situations. This implies that we must know the passions and motives of students regarding the issues. We can do that by following Mike Hulme in his argumentation that climate change is more an idea than a problem. Pedagogically, this means that we work with students on their ideas about the chosen issues in order to take them on an explorative journey to the important questions of our time. So, the focus would not lie on delivering knowledge and acquiring skills, awareness and values, but rather on exploring different ideas, asking crucial questions and to release reconfiguring tensions leading to mutation through material experiences.

2.3. Posthumanist pedagogy

Posthumanist pedagogy offers concrete concepts on how to do this. *Diffraction* and *deterritorialization*, two core terms in posthumanist terminology, have been described thoroughly as pedagogical tools by Bayley (2018).

Bayley (2018) describes *diffraction* as a means to work with questions about effects that differences in a phenomenon have. A cognitive approach of talking about different understandings of the term nature for instance would be interesting but not transform

the relational connectedness between human and nature. It would certainly have fostered an increased understanding about different attitudes in order for the learners to reflect about their own concepts but not lead to substantial and mutational co-configuration of those relations. Instead, we should ask what different concepts of nature mean for everyday life and how it affects our relation with non-humans. So, the diffractive tools help students to break up binary thinking that is omnipresent in global questions like sustainable development. Human-nature, north-south, east-west, good consumer-bad consumer, protagonist-antagonist, protector-protégé, active-passive and so on will not be deconstructed in order for learners to reconstruct dichotomies in their existing and delimited spheres. Dichotomies will be diffracted by *differencing* disparities that is looking at *effects* that disparities have on the phenomenon in question. This helps students to understand what it means to reproduce existing dichotomist thinking but also to reconfigure relations in order to change effects in an existing phenomenon. For instance, student experiences abroad often deal with the comparison of different educational systems. But these comparisons based on dichotomic categories encourage thinking in terms of right and wrong ways of doing things and foster a judgmental attitude. They do not enhance deeper understanding of why systems have been developed the way they have. Differencing helps to explore practices in a critical way and to acquire transformative instead of reconfirming knowledge. Relating to nature, by differencing instead of contrasting and reflecting we gain deeper connection to what difference means for configuring our relations with nature. Students can thus reconnect to a different attitude towards nature by physically experiencing the *effects* of this different human-nature relation.

Deterritorialization enables students to break up boundaries and to move beyond current concepts and ideas. It is the innovative part in posthumanist pedagogies so to speak. It aims at reconfiguring knowledge as a process of constant development, performed within social, material, political and discursive elements. Knowledge is used as a performative force that leads the learner towards new ground. The idea of knowledge in posthumanist pedagogy distances itself from the traditional, representative form of knowledge as something that can be accumulated as a fixed entity. Rather, the posthumanist concept of knowledge uses the rhizome metaphor originally developed by Gilles Deleuze according to which knowledge and the phenomenon it refers to are the same. The moment of description, measurement or debate causes the respective phenomenon,

and every performance produces new and different knowledge. This implies a paradigmatic shift in education for sustainable development in that sustainable development is not *taught* in posthumanist pedagogy but *caused*. This concerns all aspects of education for sustainable development, including skills and values. By *causing* through deterritorialization, we address directly the problem of imposing predefined values and norms that are insensitive of context and material intra-connectedness. Socio-material forms of learning, most importantly *liquid learning* and *communal learning*, give us another methodological basis for realizing this basic paradigm.

2.4. Socio-material learning

Estrid Sørensen (2009) provides empirically developed forms of socio-material learning in order to frame practical realizations of posthumanist teaching and learning. She distinguishes different forms of knowledge, learning and teacher-student relations as well as space related questions.

In her research, Sørensen describes traditional understandings of teaching and learning as *representative knowledge*, a form of knowledge that is reproducible independently of participating actors. Knowledge content is reproducible because it is clearly demarcated by representations such as measurements, texts, illustrations, laboratory experiments, exemplary demonstrations or material manifestations of clearly defined fact-based realities. This type of knowledge can be accumulated in the learner, the teacher-learner relationship is realized through expert-novice authority and it can be evaluated, tested and transferred.

In contrast to this traditional form of knowledge, Sørensen presents two other forms of knowledge that are relevant for our purposes. First, *liquid knowledge* is a form of knowledge that cannot be reproduced but aims at mutating the learner. Mutation is seen as a unique process that cannot be reproduced. Knowledge is not seen as a testable entity but as a process of mutation. Students are confronted with triggering places, objects and events and put into a situation that forces them to steer their learning process based upon their own motives and passions. The learning space has no clear boundaries in that it cuts across and absorbs parts of different places. Relations in the learning space are constantly changing. Components affect each other in various ways and over time.

Second, Sørensen describes a form of knowledge that she calls *communal knowledge*. Communal knowl-

edge is realized through extending experiences and sharing them with others. A group of students has a communal experience in a closed space and with predefined materials. An object forms the centre of an experience and configures common relations of the participants with the object. This sharing of relations with the object causes the foundation for the communal experience. It provides the floor for co-authorship of new experiences and freeing up of rigid meanings. For both forms of learning, the teacher-learner relationship is some sort of facilitator/activist – co-activist/co-author relationship.

In the following, we will use an example of our own experience with posthumanist approaches to illustrate how they might be implemented in practice to enhance mutational teaching and learning.

3. Promising experiences

Since 2016, the University of Teacher Education Lucerne has conducted a bilateral project with a teacher education institution in Yaoundé, Cameroon. The aim of the project was to bring together future teachers of Switzerland and Cameroon to experience the phenomenon of deforestation in both countries, so that they could subsequently develop teaching materials to be used in both contexts. The core of this project were two study visits, one with Swiss students and lecturers traveling to Cameroon and one where their Cameroonian peers came to Switzerland.

What was different about the approach from other experience based approaches like Dewey's project approach or Lave and Wenger's situated learning is that those older approaches design their activities towards a clearly stated aim or practice. Posthumanist pedagogies in contrast focus on the learning process itself and do not clearly define a specific aim or means to acquire it. Unlike Dewey's approach, posthumanist pedagogies do not focus on scientific methods or scientific contents in order to acquire skills to tackle predefined problems of life. And unlike Lave and Wenger it is not about an expert – novice relationship where concrete practices are learnt. Our approach aimed at engaging students in unforeseen learning processes that they steered themselves according to their passions, the materials acting upon them and their multiple relations with humans and non-humans in the field.

To get to this point, we used a form of liquid learning where the aim is to engage students in processes that trigger their passions related to the issue of deforestation. For instance, we went to visit the Baka, an indigenous people living in the rain forest. The village in the woods, a place with huts, fires, story

tellers, food, music, dance, rain, smoke, people, students, colleagues, professors, the chief of the village, toilets, decorations, smells, and other active actors engaged students in a different reality. Where, how and with whom they established relations was up to them and their personal interests and passions as well as to materials and events (smoke) that affected them. The students documented individual learning processes in diaries, talks, actions, photos and so on. There was no reflection about experiences but diffraction in the sense that the students discussed the effects that the different experiences had on their own learning processes.

This process helped to develop a so-called third way, which neither consists in simply combining two perspectives, nor in applying a universal concept. Instead, the individual experience of each single participant contributed to developing new knowledge and innovative analyses of the phenomenon. Own experiences were deterritorialised through engagement and being part of unforeseen activities that sometimes seemed to be of no relevance to them at first sight.

The meaning and role of single events, places or objects can be well illustrated by the fire, which was lit at dawn and kept burning during the entire night. While at first everyone stayed outside discussing, eating, making music, and dancing, the smoke became so stinging that people started moving into the little huts made of wood and leaves so as to protect their eyes. This led to discussions about why the fire was important, about the fact that some Baka men stayed up all night to protect the community, and about how very simple and small huts were sufficient to provide protection from the smoke. The fire, the smoke and the huts thus became important material actors that influenced the events of the evening and thus the learning process of students and learners. Post-experience interviews showed that students engaged in a process of diffraction and deterritorialisation. Being exposed to different perspectives and realities led them to reevaluate and rearrange their views on deforestation, indigenous peoples and the role of tradition. In this learning setting, we did not ask "what would be the right thing to do", but looked at different factors that influence the actions of the different actors. The learners thereby develop a different understanding of the world and recognize their entanglement and intra-dependence with the non-human world.

In this example, the visit to the Baka was a triggering event with the forest being a triggering place. The learning process was purposely left open as much as

possible with students deciding themselves what to learn and how to do it. Sensory and affective experiences were just as important as cognitive thinking. Students and lecturers went through a process of mutation and mutual learning, in which their knowledge and values were diffractioned, reassembled and reconfigured. Prior understandings, assumptions and prejudices were deterritorialised and different experiences and exchanges lead to the creation of new knowledge. The transformation was thus not targeted towards specific actions but more holistically towards long-term engagement and decisions on different levels of life (political, economic, professional etc.).

4. Going ahead

This very brief overview of posthumanist pedagogy and, somewhat more specifically, socio-material learning, aimed at opening up thinking about mutative learning in formal education. It is a starting point for establishing new ways of learning without rigidly adhering to presented concepts. As posthumanist thinking aims at blurring boundaries and at facilitating out of the box thinking, the same approach should also guide us in our effort to find new ways of realizing mutation and extension of experience in our students. We should creatively experiment with liquid and communal forms of knowledge. A main focus would be to shift our perception of knowledge, of the roles of teachers and students and of learning spaces and activities. We should think in learning as processes where the focus is not on testable knowledge and skills or pre-defined norms and values, but on innovative creation of new knowledge and values. The trust in students and their ability to entangle and manage learning processes is crucial for this paradigmatic shift. Our trust in our own ability to work with adequate trigger situations is another key factor.

Following up on our critique towards the way education for sustainable development is often implemented, it is important to stress that reconfiguring values does not mean that values are not important in education or that we are in favour of values-free education – if such an education is ever possible. On the contrary, values and an in-depth engagement with them are an inherent part of any education that "yearns to be educational" (Keet, 2012, p. 22). What counts is that we acknowledge that values – just like knowledge – are liquid and entangled with other human and non-human factors.

In practice, this is easier said than done. Posthumanist teaching requires that the teacher goes through a paradigmatic shift in his or her own thinking, to let go of his or her role as an expert who is in charge of

the students' learning process, and to accept learning outcomes that might be surprising. Based on our experiences with our Cameroonian partners, we are currently developing a toolbox that will help future teachers develop their own teaching settings which approach global challenges through a posthumanist lens and by applying posthumanist pedagogies.

5. Conclusion

Departing from the human-nature relation as a central question for education for sustainable development, differences between the two above-mentioned positions can be summed up as follows:

Relations	Stewardship approach	Alliance approach
Human-nature	Superiority, divide	Equality, entanglement
Mind-body	Cartesian dualism, cognitive	Entanglement, empiricist
Change-actor	humanist	decentralized
Value-objective	agential	properties and capacities of network, relations

The diffractive lens helps us uncover the effects of these properties in teaching sustainability. The relational qualities affect the way we deal with complexity and dynamics, critical thinking and the integration of multiple viewpoints, most importantly the ones from the Global South. Understanding complex

issues as an entanglement of human and non-human actors, equally and actively participating in materializations of phenomena, changes our own respective properties and capacities. We start seeing ourselves not only as agents but also as affected objects while non-human actors appear on our radar as agents. We develop cooperative properties and start seeing us as allies rather than protectors. Our capacities shift towards diffraction and deterritorialization which enhances differentiated reception and innovation. Critical thinking is affected by decentralizing the change-actor perspective, by questioning responsibilities, and by acknowledging the multiple liabilities of (human and non-human) actors. In such processes, significant questions regarding systemic and institutional problems will arise.

Effects of the different qualities of the two approaches are multifold. With our depiction of posthumanist pedagogies and socio-material learning we tried to provide ideas about how we can work with students towards this qualitative shift. Two operators and two learning settings have been presented to address an alliance-based approach to education for sustainable development. Values targeting agential attitudes are considered to be less important both in their presence and their pertinence without excluding them completely. Instead, values targeting relational qualities such as human-nature alliances, entanglement and others come into focus, and values in general are constantly re-configured. ■

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