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Towards a Posthuman Theory of Educational Relationality

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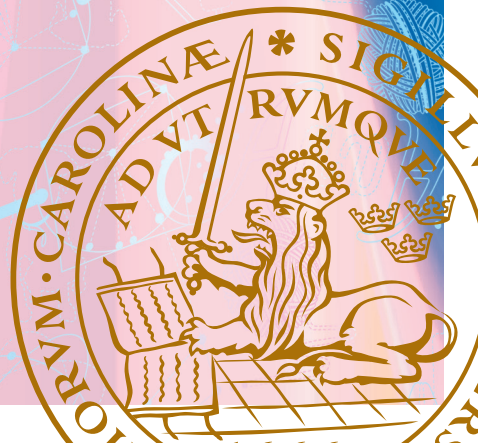
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Cutting Through Water

Towards a Posthuman Theory of Educational Relationality

SIMON CEDER

DIVISION FOR EDUCATION | LUND UNIVERSITY 2015



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Towards a Posthuman Theory of Educational Relationality

Simon Ceder



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DOCTORAL DISSERTATION

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Abstract <p>Based on an ongoing debate—academic as well as public—regarding the roles of the teacher and the student in education, this thesis explores educational relations within the field of philosophy of education. After critically examining intersubjective approaches to theories of educational relations, I localize anthropocentrism and subject-centrism (teacher/student) as two problematic aspects of the aforementioned approaches. These aspects are deeply connected with various humanistic ideas. Instead, I turn to posthuman philosophy and more specifically, I propose <i>post-anthropocentrism</i> and <i>intra-relationality</i> as a theoretical framework. <i>Diffraction</i> is hereby suggested as an appropriate posthuman methodology that reads texts and memory stories relationally in order to develop new ideas. The theory and methodology used are mainly inspired by posthuman feminist philosophers Karen Barad and Donna Haraway.</p> <p>The main contribution of the thesis is introducing and developing a posthuman theory of educational relations, which is called <i>educational relationality</i>. The main analysis is executed through a diffractive reading of intersubjective theories on educational relations and posthuman philosophy, resulting in five <i>co-concepts</i>. The first co-concept developed is <i>impermanence</i>, which means that educational relationality and the world are constantly in movement. <i>Uniqueness-as-relationality</i> proposes that uniqueness appears relationally, rather than connected to a single human subject. <i>Proximity</i> describes the closeness of relationality, which is ethical, material, and sensible. <i>Edu-activity</i> is where education is located according to educational relationality. Finally, <i>intelligibility</i> is suggested as a posthuman approach to learning. The co-concepts conceptualize the theory of educational relationality. I ground these concepts with two educational examples, literacy dogs and augmented reality technology, which are read through the co-concepts and additional posthuman philosophy. The analysis provided through these examples demonstrates the potential of using the proposed theory and its co-concepts in everyday practices, even when nonhumans are a part of the educational relation.</p>		
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Towards a Posthuman Theory of
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**KLIMATKOMPENSERAT
PAPPER**



To Abdi

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PART I: Beginnings

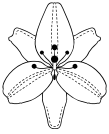
Where to begin, if not with water? After all, water covers more than 70% of the surface of the planet. A human body contains 50-75% water, a jellyfish about 95%. Water is a fluid matter; it is unstable and inconstant. Underneath the seemingly still surface of water there is the constant activity of molecules, forces, and chemical reactions. When you try to grasp it to hold it in your palm, it slips away. Likewise, when you try to grasp a phenomenon through categorizations, the next moment it is changed and the description is no longer accurate.

So what does it mean to begin with water?

This ‘beginning’, like all beginnings, is always already threaded through with anticipation of where it is going but will never simply reach and of a past that has yet to come. (Barad, 2010, p. 244)

Fluidity implies that no form exists in the constant flux of molecules; it is taking shape and dissolving at the same time. Thus, water is inherently relational. In a similar way, the world is in a constant state of change, and therefore new descriptions are always needed. To describe does not involve revealing the essence of a phenomenon; rather, it means to question such foundations and create more fluid alternatives. However, to do research does not mean becoming resigned to the fluidity of the world and saying there is no use in trying to grasp the ungraspable. Haraway (2004) argues that this is why we need new stories that have “continuations, interruptions and reformulations” (p. 128). Beginning with water is a way to continue to interrupt or cut reality and propose reformulations—always bearing in mind the transience of this venture.

That said, let’s begin cutting through water.



CHAPTER 1. Towards a Theory of Educational Relations

I don't intend to capture an idea but to evoke further thought.

—Karen Barad

Introducing the field

When I'm at my summerhouse—it goes under the name Lilywood—in the Swedish countryside I often go for walks with my dog, Abdi. Abdi and I walk along the dry stone walls surrounding the wheat and rapeseed fields. We cross the meadows, but make sure to keep our distance from the cows. Abdi and I explore the grove, and look for fish in pond. Occasionally we meet Jan-Olof and Birgitta, the farmers who own the fields and meadows that surround my summerhouse. They are our closest neighbors, living on the farm across the field, and they have a dog that Abdi likes to play with. Recently retired, they are now devoted to breeding goldfish and other types of fish in their pond, but there is a heron that eats them. So we talk about that and about the weather, the harvest, and our dogs. However, occasionally we talk about education.

They ask about my research, and I tell them I write about education. I share stories from my experience as a teacher and explain why I am interested in studying relations in education. The topic is engaging. Jan-Olof tells me that their grandchildren are now school age. “The kids these days, they just run around in the classroom,” he continues. “No wonder they don't learn much. Did you know that the teachers don't even have their own desks in the classroom anymore?” Jan-Olof is slightly taken aback by his own words, as if he

has just realized yet another dimension of confused fascination in connection with this insight. “And did you hear about that female teacher who was punched by one of her students? Apparently, before that incident, she had been called naughty words. Should it be like that? No. It has gone too far. Way too far.”

This critique of what is seen to be a too personal and too “soft” approach in the classroom has been a fairly common reaction to the escalating school problems in Sweden. For several years, Sweden has been lagging behind in international student assessment evaluations in most subjects. This decline has occurred in the last few decades, and since the student-centered approach is said to have developed simultaneously, it is an easy target for blame. The Swedish liberal party used this position in the 2014 election campaign: “There should be no doubt that it is the teacher who decides in the class room.”

“It was different back in my day.” Jan-Olof remembers his own school years in the 1950s, and continues, “If we were not silent in the classroom, the teacher would come up and hit you with the ruler”. Birgitta objects, and asks if Jan-Olof was really beaten. He admits that maybe he wasn’t, but others were. “There was a respect for the teacher, and we did what we were told” Then Jan-Olof tells the story of this kid from the next village that really could not sit still: “He was restless and always had some pranks afoot. So he was beaten. And since he did not learn much, his parents decided to take him out of school. Instead they asked a nearby haulage contractor if they could use an extra hand. He was a good worker and was eventually promoted to manager. Stayed there until retirement. So he managed anyway.” I will return to this story shortly.

Born in 1981, most of my school years took place in the 1990s, and therefore I cannot quite relate to what it is like to fear a teacher. As far as I know, the teachers I had in my school years—Gunnel, C-G, Lasse, Ann-Marie—never laid a violent hand on any of the students. One of the most dramatic moments in my school years was in 5th grade when my friend Sohejl was talking back to the teacher C-G, arguing that he did not need to clean up his messy school desk (the model that kept books, pencils and other materials inside a drawer that opened through the counter top). C-G lifted the desk, brought it into the entrance hall, reversed it so all the content fell out and stated: “Well, *now* it needs cleaning.” Indeed, my school years were comparably quite harmonious. We usually respected our teachers, but I can’t remember whether it was out of fear of punishment. Since I have no personal experience of authoritarian teachers, I appreciated hearing Jan-Olof’s stories. The years passed by and I went on to teacher education and became a teacher myself. From my years in teacher

training, I clearly recognize the ideas of the “soft” approach to the students rather than the authoritarian approach. I will come back to this later.

Historically, the authoritarian teacher has existed or exists in most societies where education is given a leading role in fostering young children. It can be a religious authority, a state authority (as in military governed societies), or an authority of a welfare society such as Sweden. The transmission of knowledge and norms are central; the role of the student is to obey, and to receive the predetermined knowledge from the teachers. Hence, the educational relationship is a strict one, where the focus lies on the teachers’ methods and content. The classroom is seen as an industry, producing the kind of inhabitants that society requires. Flogging is forbidden in Sweden, as in many other countries, which means that the classic authoritarian teacher is something of a rarity. However, in many societies the authoritarian aspect of education appears in other forms. One shape that will be discussed in the next section is the knowledge-centered approach to education.¹

Knowledge- and student-centered approaches

In democratic societies few teachers uphold the model of the educator as an authoritarian violent figure. Instead, they are administrative staff whose purpose is to help students to reach externally fixed goals. The knowledge goals are firmly connected to international student assessments, among which PISA is the most well-known. Therefore, the concept of the *knowledge-centered approach* to education is becoming increasingly significant.² Based on the idea of control, discipline, and order, the knowledge-centered approach to education is associated with a new form through the recent emphasis on student performance and control in teaching. What has been called a new authoritarian discourse (Rosén, 2010), a knowledge-efficient school system (Aspelin & Persson, 2011), or a utilitarian performance culture (Juelskjær, Staunes, & Ratner, 2013) is a well-analyzed aspect of education. This aspect involves quality reports, national

¹ In this introduction the term “authority” refers to a hierarchical oppressive or violent authority. For some alternative accounts on authority in education see Arendt (2006), Pace, and Hemmings (2006), Frelin (2010), and Bingham (2008).

² Two central theories from the knowledge-centered approach to education in the US tradition are Hirsch’s (1987) view on core knowledge curriculum and Adler’s (1982) Paideia proposal for a liberal education for all children.

tests, international student assessments, grades in earlier classes, and the administration of the teacher's role, not to mention the market's role in education. The aspects mentioned previously are the conditions set out for teachers on a societal and organizational level that steer teachers toward more structured, administrative roles. Therefore, the belief that evidence-based research on teaching is the savior of education is strong in some quarters, for example among a number of current politicians.

Throughout the history of education, knowledge-centered approaches can be found in different shapes, often in contrast to a *student-centered approach*. Let me expand on the student-centered approach before returning to a discussion of both approaches. In the student-centered approach, educational relations have been developed through concepts of dialogical methods, mentoring, sociocultural pedagogy, formative evaluation, (self-) reflection, and a strong focus on the relational and interpersonal aspects of teaching and learning. The student-centered approach also has a strong critical voice, one which advocates promoting emancipation and enhancing democracy. Research concerning the personal relations between the teacher and the student is intensely studied.³ One political influence on the current student-centered approach can be traced to left-wing political demands for democracy and student influence developed in the late 1960s and the 1970s in Sweden and many other countries. Since then, Swedish curricula have, for example, included aspects of equality, gender equality, and have placed the student at the center of the learning and teaching processes. Teaching should be planned with the students' interests, backgrounds, needs, and goals as the starting point. These political changes had a huge impact on the way in which education evolved towards a more personal student-centered approach (Aspelin & Persson, 2011).

Negative side effects of the student-centered approach include cases where teachers leave their students to work all by themselves on some kind of individual activity pedagogy, which has been shown to have the effect of making students less engaged in their work (Vinterek, 2006). Ecclestone and Hayes (2009) refer to what they call the new therapeutic education, which is based on psychological concepts. Instead of focusing on the student and her/his educational development, the student's psychological well-being is instead the

³ This literature is further reviewed in the next section "Research on educational relations."

focus of attention. These criticisms target mainly practical consequences, rather than addressing the philosophical plane this thesis is utilizing.

It's time to return to my walk with Abdi, and the conversation on education taking place in the middle of the Swedish countryside. Even if Jan-Olof is somewhat nostalgic when talking about the strict order in the classroom in his day, he also recognizes the problems with it. One example is the story of his schoolmate who dropped out. "Today, maybe he would have gotten extra help, or a diagnosis of some kind," Jan-Olof reflects, despite the fact that the situation for his schoolmate turned out just fine in the end. Jan-Olof does not wish the old system back, but stands empty-handed, unable to offer a reliable alternative. Before the schools in Sweden were too authoritarian and knowledge-centered, even permitting violence towards students. Today the Swedish school has considerably shifted to a soft student-centered approach, one which is lacking in discipline and knowledge. As Jan-Olof said "It has gone too far. Way too far." In voicing this position, he represents the public's current view on Swedish education. From my experience, I recognize the student-centered approach as a dominant perspective from my teacher education. To some extent I also recognize this discourse from the upper secondary school where I was teaching. Although it was the view that was embraced at the time, the student-centered ideal always conflicted with other aspects such as curriculum, schedule, and the strengthening of the knowledge-centered discourse in Swedish society.

So far, the dualistic description of the knowledge-centered and student-centered approaches to educational relations has been intentionally discussed in a polemic way. It involves a clear-cut conflict, different ideological goals, and a polemic debate that confuses means with goals. All debates are dependent on the way the agenda is set. If the left wing, socially aware, democratic student-centered approach has until recently had a major impact on education in the past decades, the current neoliberal, right wing, knowledge-centered approach now has a strong voice, both in contemporary Swedish and international debate.⁴ But how can one deal with education, if not from the standpoint of this polemic dualism? Should I develop a middle way to study? Or perhaps the perfect balance? When adopting a dualist model and not wanting to end up at either of

⁴ Some examples of research describing the neo-liberal development in contemporary education include Kumashiro (2008), Apple (2006), Aspelin and Persson, (2011), Hoyle and Wallace (2007), and Ozga et al. (2011).

the two poles, a middle way is a common means to find a resolution. A comic strip by the artist Warren gone viral in educational contexts portrays a classroom with children in straight rows and a teacher in front telling them: “I expect you all to be independent, innovative, critical thinkers who will do exactly as I say” (as cited in Lasley, 1989, p. 38). The problem with approaching a solution as a middle way is that the dualist starting points are accepted as the valid framework of the debate. I framed the two positions as centric positions—how can an alternative framework be developed in their place?

One solution to this dilemma is to focus on the research field of educational relations. This research is extensive and encompasses a wide range of educational theories. Education is analyzed as a relational question based on relational theories and principles. The perspective of educational relations escapes both knowledge-centrism and student-centrism. This thesis will be located in the field of educational relations, but how can the relational perspective be approached without promoting the relation as a new centric position? The study of educational relations therefore needs to be approached as a decentering project. The possibility of doing this will be discussed next.

Education—from relation to relationality

This thesis is located in the research field of educational relations, with an interest in its theoretical and philosophical underpinnings. I will in the following introduce central problems in the field educational relations; these will be dealt with more thoroughly in the section “Research on educational relations” below. The purpose is not to install educational relations as a new centric position, but to use the concept of relationality as a decentering concept. Even though education is a processual science, many researchers in this area find their points of departure not in the processes, but in stable entities existing before and after the process. For example, learning is considered a process that appears as a transformation of the learning subject⁵ in accordance to measurable standardized knowledge goals. Teaching is considered a process that appears

⁵ The use of the concept “subject” in this thesis generally refers to the philosophical use of the term meaning a distinct being—usually a human being. For instance, throughout the text, “educational subjects” is used to describe students and teachers. Thus, it should not be confused with the educational “subject” referring to an area or field of knowledge that is studied at school (i.e. math, science, and English).

when a teacher prepares and delivers knowledge for one or several students to understand. From a variety of educational relations perspectives, students, teachers, and knowledge are seen as pre-existing entities that interact in various ways with the goal of transforming the student. What would a theory of educational relations look like if it did not focus on entities but instead on relationality?

In order to explore the idea of relationality, new approaches are needed. My own educational experience prior to enrolling in the PhD program is restricted to educational practices: attending school as a student, attending university as an education student, and working as a teacher in an upper secondary school. Despite this experience I do not have a good answer to the question of relationality. I believe that if I performed a classroom study, I would most likely also see entities rather than relationality. There is no available language for studying relationality and my mind is impregnated with individualistic and entity based ideas due to its dominance in Western history of ideas.⁶ Instead I need to explore a language and an approach that are less geared toward categorization and are better equipped to take on the difficult task of handling education more fluidly. For this purpose, a philosophical/theoretical approach is used in this thesis, which therefore places it within the philosophy of education. The main contribution of this thesis is the development of a new theory in contrast to existing theories of educational relations. I call this theory *educational relationality* and I refer to the concepts developed to explore the theory as *co-concepts*.

Studying education as a relational matter also necessitates a critique of individualism. When discussing the purpose of education and learning, the learning subject—the student—is generally placed at the center. Classrooms are studied as spaces containing students and things as entities interacting with each other in causal ways. Human beings, furniture, books, and curricula are analyzed as entities with inherent qualities, which hampers the possibility of considering the relationality in education.⁷

⁶ For a discussion on education and individualism in Western philosophy in comparison to sub-Saharan philosophy, see Metz (2015).

⁷ This will be further discussed in the sections on previous research below.

The existing intersubjective approaches to theories of educational relations were developed as a critique of this individualistic view of education. These present important but insufficient contributions to theories of educational relations. Most intersubjective theories see the educational relation as a meeting place between the two educational subjects, teacher and student. Even if intersubjective approaches are critical to individualistic ideas they are still what this thesis will refer to as *subject-centered*. Instead, this thesis explores the possibility of studying education by starting with the relational quality, the relationality, instead of focusing on what each participant brings to the relationship. This shift from an intersubjective approach that studies educational subjects (students and teachers), to an approach that focuses on the relationality of education, is the cornerstone of this study.

The theoretical framework of this thesis relies on two main concepts. The first one, *intra-relationality*, is a critique of individualistic approaches that focuses on the entities of the relations. In contrast to other relational theories, intra-relationality proposes a view where the relationality is the point of departure.⁸ In other words, a subject is always seen as a component of relationality and never as an entity with inherent qualities. Intra-relationality should be seen in contrast to cognitive, constructivist, and neo-liberal individualistic ideas based on separation or difference. Instead, intra-relationality is a philosophical idea based on movement, process, entanglement, becoming, and transformation. Intra-relationality also brings with it the responsibility of dealing with ethics as an entangled and implied aspect.⁹ This ethical aspect plays a particular role in theories of educational relations since relationality involves entanglement in others, and all entanglement carries an ethical dimension. This work deals with ethics in a similar way: they are never highlighted, but always present.

Education—from humanism to posthumanism

Previously I stated that human beings, furniture, books and curricula are analyzed as entities with inherent qualities and that this limits the possibility of considering relationality in education. Another aspect of this limitation is the

⁸ For further exploration on the thesis' theoretical framework, see Chapter 3.

⁹ This approach to ethics will be discussed throughout the thesis. The view of ethics as implied rather than applied refers to Todd (2003). The view of ethics as entangled refers to Barad (2007, 2012).

consideration of what counts as an agent in a classroom. The main protagonists of education are usually the educational subjects, the teacher and the student. Materiality or nonhuman aspects are seen as objects about which knowledge can be received, or as tools that can facilitate learning for the human individuals (Waltz, 2006; Pedersen, 2010a). From an ethical perspective, to question who or what to be ethical towards raises questions concerning who and what are included in educational relationality.

As will be stated throughout this work, contemporary theories about educational relations prioritize human relations and agency, thus they are anthropocentric. Learners are not separate subjects with inherent qualities who learn about objects with inherent qualities. Humans, furniture, animals, books, and technology are parts of educational relationality. Here, the intra-relational approach discussed above is accompanied with the second of the two concepts of the theoretical framework of this thesis: post-anthropocentrism. *Post-anthropocentrism* refers to a decentering critique of the human as the center of the world, a lens through which other aspects of the world and knowledge are seen as being created for human use.

Theoretically, I turn to posthuman philosophy in order to deal with the challenge of shifting from the intersubjective theories of educational relations to the creation of a theory of educational relationality. Posthumanism is defined in this thesis by the post-anthropocentrism and intra-relationality that make contribute to its theoretical framework, which are further explored in Chapter 3. Towards the end of this chapter, a more extensive review of research on posthumanism and education will be presented.

Aim and research questions

This study is situated in the field of philosophy of education, as the purpose of the current research is to study the philosophical foundations of educational relations. Its ambition is to develop theory, explore methodology, and exemplify theory. The thesis is based on a critique of the anthropocentrism and subject-centrism of intersubjective theories of educational relations. Informed by this critique, the development of an alternative theory of educational relations in this thesis is inspired by two aspects of posthumanist philosophy, namely intra-relationality and post-anthropocentrism. The proposed theory is called *educational relationality*. The methodology of exploration is aimed at reading

texts in a way that follows the thesis' theoretical framework to a posthuman methodology; thus the diffractive methodology of the thesis involves focusing on the creative construction of new ideas. The texts explored are mainly a selection of posthuman philosophy and intersubjective theories of educational relations. Exemplifying the theory is done by analyzing some posthuman educational examples through the newly developed theory and posthuman philosophy.

The aim of the thesis is to develop a new posthuman theory, *educational relationality*, based on a critique of intersubjective theories of educational relations and to read these theories diffractively through posthuman philosophy with a focus on intra-relationality and post-anthropocentrism.

The following research questions are proposed for illustrating theoretical, educational, and methodological problems:

- (i) What is the humanist background on intersubjective theories of educational relations and how does this motivate the development of a posthuman alternative?
- (ii) How can the methodology of diffraction be used in a philosophical study on the topic of educational relations in order to develop new theory?
- (iii) What transformations are made when reading educational and intersubjective concepts through posthuman philosophy and how do these concepts contribute to an understanding of the theory of “educational relationality”?
- (iv) How can “educational relationality” be exemplified and analyzed with concrete posthuman educational examples?

Question (i) is primarily dealt with in Chapter 2. Question (ii) is answered in Chapter 4, but is also present in Chapter 5–8. Question (iii) is approached in Chapter 5–6. Question (iv) is dealt with in Chapter 7–8.

Structure of the thesis

The overarching structure of this thesis consists of three parts: Beginnings, Diffractions, and Examples.

Part I: Beginnings

Part I deals with the various starting points—beginnings—of the thesis: situating the thesis, aim of the study, research questions, previous research, theory, and methodology. These beginnings are presented to show that the research is conducted with careful consideration, but they are also necessary to provide an understanding of the subsequent parts.

In this present first chapter, the thesis has been presented as a study on educational relations in the field of philosophy of education inspired by posthuman philosophy. The aim of the thesis has been presented along with the research questions. Further, the thesis will be positioned in relation to previous research on educational relations and posthuman educational research. Chapter 2 will investigate the humanist background that the posthumanist approach presented in this thesis is inherently part of, but is also working to overcome. It is argued that two central problems still need to be addressed: anthropocentrism and subject-centrism. Chapter 3 presents the posthumanist theoretical framework of the thesis. In contrast to the two humanistic problems, the theoretical framework contains the two concepts of post-anthropocentrism and intra-relationality. Chapter 4 discusses the kind of methodology a posthuman theoretical framework requires. Diffraction is discussed as a methodology used to perform critical but productive readings of texts, preferably from various disciplines, for the purpose of creating a new theory and new co-concepts.

Part II: Diffractions

Part II presents the diffractive analysis, out of which the resulting theory educational relationality is developed. Intersubjective theories of educational relations are read diffractively through posthuman philosophy, focusing on productive and creative ideas. The diffractive readings in Part II are all present in the conceptualization of the theory of educational relationality, and the co-concepts are developed through transformations to support the theory.

Chapter 5 analyzes the role of relationality in educational relationality. Instead of focusing on the “becoming” of the human subject, the co-concept *impermanence* primarily promotes the continuous becoming of all aspects of the

world. In contrast to the view of uniqueness that takes only human individuals into consideration, the co-concept *uniqueness-as-relationality* considers the impermanent intra-relational world as the foundation for all uniqueness. Instead of relationships based on separate educational subjects, the co-concept *proximity* focuses on relationality based on ethical and material closeness.

Chapter 6 analyzes the role of education in educational relationality. Instead of locating education in the gap between the teacher and student, the co-concept *edu-activity* is proposed as the location of posthuman educational relationality. It is argued that edu-activities do not have pre-determined intentions and directions, but that these intentions and directions are created in relationality. Instead of viewing learning as an anthropocentric activity directed towards the student, the co-concept *intelligibility* discusses the transformative aspect of educational relationality from a post-anthropocentric approach. In relationality parts of the relation make themselves intelligible to one another in various human and nonhuman ways.

Part III: Examples

This part provides the reader with two posthuman examples of educational relationality. The two examples, dogs and technology, are read diffractively through the theory educational relationality, its co-concepts, and additional aspects of posthuman philosophy. Turning to these posthuman examples will contribute with a more cohesive understanding of what educational relationality can mean in terms of post-anthropocentrism and intra-relationality. The examples will also contribute to further development of the theory and its co-concepts.

Chapter 7 discusses the use of *literacy dogs* in animal assisted literacy projects. When children are practicing reading aloud to the dog, this kind of natureculture event decenters the idea of what it means to be both a human subject and an educational subject. The analysis consists of a series of discussions of educational roles, relata, and relationality, followed by an analysis of literacy dogs as a natureculture edu-activity in proximity. Finally, the discussion will target embodied aspects of literacy dogs.

Chapter 8 deals with the use of *augmented reality (AR) technology* in education. When viewing the sky through the camera of an astronomy learning app, the program adds additional virtual information to the image to create an augmented reality. The analysis consists of a few sections, which discuss AR as a human-technology-world entanglement and consider it from a perspective of

seamlessness. AR is also analyzed as intelligibility and as a multi-directional complex entanglement.

The thesis ends with the concluding chapter “Towards New Beginnings.” Accompanied by a few memory stories, this chapter discusses the final examples as new beginnings or as points of departure for others to continue to engage. First, nature is discussed as an edu-activity alongside literacy dogs and AR technology, and nonhuman relata are discussed as part of unique relationality. Next, I will discuss the human limitation of experiencing impermanence and how teachers can handle movement and activity that they cannot access. Intelligibility is approached from a new perspective, namely how to observe without value or categorization. Finally, the phrase “cutting through water” is motivated for educational relationality.

Research on educational relations

Educational theorist Alexander Sidorkin (2000) introduces the field of educational relations by stating, “One of the main intellectual trends in American educational philosophy could be described as a shift from the pedagogy of behavior to the pedagogy of relation” (p. 1). Sidorkin proposes a relational perspective as a critique of and an alternative to a view of education in which behavior and learning is causal and involves active subjects and passive objects.¹⁰ Lenz Taguchi (2010) also criticizes this view of education, which she refers to as an “intrapersonal” approach to learning. The influence of psychology and cognitive science in educational research has contributed to theories preoccupied with the processes occurring inside the learning individual. Perspectives that consider educational relations as interactions between two active subjects is what Lenz Taguchi (2010) calls an “interpersonal” approach to education. In this thesis, this idea will be referred to as *intersubjectivity*.¹¹

¹⁰ There are plenty of critical education theories which following this argument, for instance Freire’s (1970) critique on what he calls the banking model of education. In this model, an active teacher prepares passive knowledge, which then is transferred to passive students.

¹¹ The intersubjective research is based on various theoretical positions that focus on learning in a social context between human beings, for example social psychology theories (Aspelin, 1999, 2005, 2010), social-constructivism (Lave & Wenger, 1991), social interactionism (von Wright, 2000), feminist theories (Noddings, 1992), existential philosophy (Green, 1973),

In order to provide an overview of the intersubjective theories of educational relations, three major approaches to the field will be discussed next.¹² The first approach discusses the ways in which educational relations are used in order to facilitate learning for the student, that is, as an instrumental relation with a clear educational goal. The second approach argues that one of the goals of education is to foster relational and caring citizens. The third relational approach argues that relations are the basic conditions for being and education. What is of particular interest in this overview is the different roles these intersubjective approaches to educational relations take.

After this overview, I will localize two problematic assumptions of intersubjective theories: the subject-centrism of the relation, and the human-centrism of the relation. The theoretical framework of this thesis is based on exploring these two problems and introduces as a response two contrasting concepts: intra-relationality and post-anthropocentrism.¹³

Three approaches to educational relations

To begin with the first approach, a large proportion of the intersubjective research on educational relations is concerned with the question of how to use the relation in order to enhance the student achievement. The goal is to study relations in order to find better ways of constructing efficient and qualitative relationships. The anthology *No Education Without Relation* (2004) proposes that educational relations should be granted a more important role in educational research since a good education is directly dependent on good relations. The contributions of the anthology stretch over a wide range of approaches to the field, but the idea that relations are a key to the student learning is the main point (Bingham & Sidorkin, 2004). The first approach to educational relations is based on a particular view of the human, here the

psychoanalysis (Lyon McDaniel, 2004), hermeneutics (Bingham, 2004), dialogue education theories (Burbules, 1993; Sidorkin, 1999, 2000), and communication models (Biesta, 2004).

¹² The distinction between these three approaches to educational relations is made in order to present a brief overview across the broad and shattered field, rather than completely capturing it.

¹³ For more details on the theoretical framework of the thesis, see Chapter 3.

student, as someone who learns through social interaction, where the social environment considered an intersubjective tool that allows the teacher to have the maximum impact on the student, though, the influence is subtle, and not necessarily in explicitly transmitting knowledge. Bingham (2008) suggests the concept of “pragmatic intersubjectivity” for a relational approach to educational relations that also contains authority and that teachers are being used by students for learning. Aspelin (1999) discusses pedagogy as an undertaking which is “relationship conscious” in order to create strong social bonds that will facilitate learning.

The second approach to intersubjective educational relations is based on the goal of fostering caring and relational students. This aspect is concerned with questions of school curriculum and the purpose of education. In contrast to the first approach, which focused on relations as a tool for creating knowledge, the second approach promotes a kind of relational and caring competence. In regard to this aspect, Noddings (1992) argues for educating children and students with an emphasis on caring relations. In order to succeed, education must also promote these competences as an approach to the educational relations between students and teachers that occur in everyday life in schools. Martin (1985) proposes a similar purpose of education, focusing on teaching students to create caring connections. Lyon McDaniel (2004) suggests caution when it comes to enhancing relationships in education, proposing the idea of a ‘good-enough relationship’ that encompasses both the relation and the unique individual. This approach is also consistent with some aspects of the moral education field, for instance Green’s (1999) discussion on caring and norms. In one way, this approach resembles the first approach since its goal is to enhance a particular kind of learning process in the student in a more or less instrumental way. The difference is that the first approach uses the educational relation in order to make the students acquire more knowledge, and the second approach uses a caring teaching approach in order to create caring students.

In contrast to the previous two approaches, the third approach does not use educational relations in order to receive a particular learning outcome. Instead, it argues that relations are the very condition for education. Aspelin (1999, 2005, 2010, 2012, 2015; with Persson, 2011) argues that the social relation is the existential condition, which defines what it means to be human, and therefore the relation itself is meaningful. An educational relationship cannot be created instrumentally—it appears in a genuine meeting. Aspelin’s (2005) argument, based on Buber’s philosophy and social psychology theories, is typical

for the intersubjective perspective. In accordance, Sidorkin (2000) argues that with respect to pedagogical methods, educational practitioners not only need advice on practicing pedagogical methods, they also need advice on how to rethink their practice relationally in terms of co-being. Gergen (2009) criticizes individualistic worldviews and proposes instead the idea of “relational beings” as an alternative and as a foundation for education. In her study on pedagogical encounters, von Wright (2000) argues that a unique individual only can be understood as a relational phenomenon and that intersubjectivity constitutes mutuality and reciprocity. Frelin (2010) states that a relational dimension is vital for understanding questions of teachers’ practices and professionalism.

A focus on educational relations creates a shift away from theories on subjectivity to theories on intersubjectivity which incorporate “the other” in the relation, but also brings into question what this means ethically for one’s existence and being. The insight that relations are inevitably ethical has brought several educational theorists to the ideas of ethical philosopher Emmanuel Levinas, notably Todd (2003, 2015a) and Biesta (2006, 2010).¹⁴ Levinas (1969, 1998) places the other in the primary position in his philosophy, stating that being responsible for the other is not only an ethical idea, but is also the foundation for being. To place the other first represents decentering the subject-centered position and creates the possibility of consider relations intersubjectively. Relations are not an area in which ethics are applied between individuals; rather, ethical responsibility for the other is what creates the intersubjective ontological condition.

All three approaches—but especially the third—have to a large extent been dominated by intersubjective theories, with the purpose of shifting away from ideas of individualism and independent subjects. As stated initially, when using an intersubjective approach, an educational relation is no longer seen as a relation between an active subject and a passive subject. Instead, the subject is defined through its being and being ethical with other subjects. Arguing that

¹⁴ In an empirical study of philosophy of education journals, Hayden (2012) counted, among other things, the number of articles where a particular philosopher was the main topic. The study was delimited to the years between 2000 and 2010 and showed that Levinas was the tenth most mentioned philosopher. In addition, when studying articles in which a particular theme was discussed, the two dominating themes were ethics and moral—far ahead of, for example, epistemology, political philosophy, or metaphysics (Hayden, 2012). Hence, Levinas and ethical questions have had and continue to have relevance in the philosophy of education.

education is about relationships is therefore the logical effect of intersubjective theories. What then are the problems with the intersubjective approach to education, and where is this thesis placed theoretically? That will be discussed next.

Problematizing intersubjectivity

There are two main problems with the intersubjective approach to theories of educational relations: subject-centrism and anthropocentrism. I will start with the former. Even if intersubjective theories are relational, they often originate from the idea of an individual entering a relationship to encounter another individual with the result that these individuals are transformed through the relationship. Hence, the relation is in fact not the starting point, but a place for individuals to meet and transform. In this regard, the relation is a place for interaction between two individuals, and in the educational relationship, it describes an interaction between a student and a teacher. These educational roles come with a rich conceptualization concerning what it means to be a teacher and what it means to be a student. Informed by Heidegger, Margonis (2004) states that knowing how the students' characters develop through relations helps us "understand the social relationships that define the terms of possible pedagogical relationships" (p. 45). I argue that the educational intersubjective theories too often take teacher and student roles as their points of departure.¹⁵ One of the purposes of the intersubjective approach is to critique individualistic or intra-personal approaches to education. Despite this, the starting point for intersubjectivity is still what the individual brings to the relation and what transforms through the relation. In this thesis I will critically refer to this problem as the *subject-centrism* of intersubjective theories of educational relations.

When relations are treated as temporary meeting places for educational subjects they repeat subject-centered epistemological and ontological starting points instead of relational ones. These are in various ways connected to the humanist influence on society in general and on education in particular (Usher & Edwards, 1994). Humanistic ideas and ideals place the humans at the center, but also define them in contrast to nonhumans. According to Biesta (2010),

¹⁵ There are of course examples of theorists arguing that these roles are perhaps not as stable as we might think, for example Thayer-Bacon (2004), Conroy (2004), and Todd (2003, 2014).

humanism can be defined as “the idea that it is possible to know and express the essence of the nature of the human being, and also that it is possible to use this knowledge as the foundation for subsequent action—in the sphere of education but also, for example, in the sphere of politics” (p. 78). The humanist framing of essence of humanness is based on exclusively human qualities such as a developed cognitive capacity for language and rationality. Biesta (2004, 2010, 2014) argues that the humanistic starting point for education is already fixed when the question of what the human is resolved. Instead of focusing on fixed processes, educational relations often approach education as interaction, which contributes to a more uncertain analysis of education. This corresponds to the third approach to educational relations as non-causal and therefore uncertain.

Sidorkin (1999) argues:

We are used to [taking] material objects, human bodies, individual selves to be units of being, knots of existence. In fact we might have been wrong all along, and these seemingly separate, stable, and definite objects can exist as long as they relate to each other. In turn, the invisible, elusive and ever-changing *relations* between and among things – only those are real and worth paying attention to. (p. 143)

Shifting from subject-centered relations to sincerely relational relations is something this thesis is proposing. Biesta (2004) critically argues that a theory of educational relations “is *not* about the ‘constituents’ of this relationship (i.e., the teacher and the learner) but about the ‘relationality’ of the relationship” (p. 13). It is this idea of the ‘relationality’ that can serve as a contrast to subject-centered accounts of educational relations. When placing relationality at the focus of investigation, the individual teacher and student are no longer the protagonists of the story of educational relations. Hence, the idea of educational relations as a relationship between two distinct individuals is transformed into a view of educational relations as foundationally based on relationality. For this purpose, the concept of *intra-relationality*¹⁶ is developed as one of the two concepts of the theoretical framework.

¹⁶ As stated above, Lenz Taguchi (2010) describes a shift from psychological *intrapersonal* to social psychological *interpersonal* theories in education. In her educational theory, she proposes another shift, from *interpersonal* to *intra-active education*. This view on education has served as

The second main problem with intersubjective approaches to theories of educational relations is that these approaches start with the idea that educational subjects must be human. When focusing on the constituents of the relation, the ideas about these subjects start not only from the presumptions of what it means to be a student and a teacher, but also from what it means to be a human being. Nonhuman aspects are continuously being overlooked in educational research and when they do appear they are considered to be instruments for humans to use to facilitate learning or objects to learn from (Pedersen, 2010a, 2010b; Waltz, 2006; Sørensen, 2009). Intersubjective theories of educational relations consistently take only humans into consideration. Nonhumans do not fit in these theories and are instead brought up in other theories concerned with curriculum, educational technology, or school architecture. Thus, in this thesis I will refer to this problem as the *anthropocentrism* of intersubjective theories of educational relations.

Bingham and Sidorkin (2004) state in the introduction to the anthology *No Education Without Relations* “The authors of this book try to understand the human relations” (p. 2); in the joint manifesto, they state “Schools must focus on human relations” (p. 6).¹⁷ Aspelin (2015) argues that in order to discuss the purpose of education an emphasis on the interhuman dimension is needed. When drawing on Freud and Levinas, Todd (2003) repeatedly enters an analysis based on human and ethical conditions for human relations. The following quote from Sidorkin (1999) follows a similar anthropocentrism:

What does it mean (for a human being, in this case) to exist? Educational theory, in turn, needs a theory of the human individual. Understanding the self as dialogical in nature is for me an important bridge from philosophy to educational theory. (p. 43)

one of the influences of the intra-relational approach in this thesis, partly because both are influenced by feminist philosopher Karen Barad’s (2007) notion of intra-action.

¹⁷ In the anthology, I have only noticed one exception that opens up the possibility for nonhumans as part of a relation: “Human beings and non-human things acquire reality only in relation to other beings and things” (Bingham & Sidorkin, 2004, p. 6)

The starting point is that existence in an educational theory is connected to the human individual. Sidorkin's (1999) dialogical approach is using a model that is based on the idea that both parts of the dialogue are human. The dialogue is based on human language; therefore only beings that use human language (that is, humans) will be included in the theory. Hence, to be human consequently means to be with, and learn from, other human beings, disregarding nonhuman beings and things. What Sidorkin (1999) refers to as "understanding the self" means starting from an idea that the other is also the same as you, and implies that the other at least belongs to the same species as you do. Intersubjectivity means understanding the human aspects of the self—not understanding all relations that the human self is involved in, nor figuring out what nonhuman relationality would mean for education.

Earlier it was argued that the subject-centrism of intersubjective theories of educational relations could be traced to human ideas and ideals. Regarding the anthropocentrism of intersubjectivity this connection to humanist thinking is even stronger. Feminist philosopher Rosi Braidotti (2013) argues there are two sides of the posthuman argument. Apart from the humanistic critique proposed by Biesta (2004) and others, and what Braidotti (2013) calls "the posthumanism of the posthuman", there is also a second equally important critique: "the post-anthropocentrism of the posthuman". This critique involves a closer investigation of the fact that human beings almost exclusively places themselves at the center of philosophy and that the world is interpreted using the human as the point of departure. The field of educational relations has not yet been thoroughly studied from a post-anthropocentric perspective. Therefore, *post-anthropocentrism* is developed as the second of the two concepts of the theoretical framework of the thesis. Previously, I argued that intersubjective theories made a shift from subject/object to subject/subject. Here, it is argued that the very distinction between an active subject and a passive object is not valid. Instead, the post-anthropocentric approach used in this thesis sees agency in humans and nonhumans alike.

This theoretical framework of this thesis proposes an account of relations and relationality as ontologically foundational. Educational relations are not instrumental tools for teaching students knowledge or fostering students to become caring beings. Therefore, this work is a development of the third approach to educational relations discussed above. The development consists of a shift from humanistic intersubjectivity to posthumanism, more specifically intra-relationality and post-anthropocentrism. Generally, these two aspects are

hardly ever used in philosophical or theoretical studies on the field of educational relations.¹⁸ In what way have other kinds of educational research been using posthuman philosophy? That will be discussed next.

Research on posthumanism and education

Posthumanist philosophy has inspired contributions to educational research in the new millennium. In this section, a wide range of the uses of posthumanist theories, ideas, and practices in educational research will be presented.¹⁹ I will first summarize some research that includes post-anthropocentric approaches, followed by examples with an intra-relational approach, before discussing what a posthumanist approach to educational relations could involve.

The most common use of posthumanist ideas in education is to critique a view on nonhuman aspects as passive objects and instead include them in educational research in a post-anthropocentric manner. One area where this idea is particularly common is early childhood education, which is also the educational field where posthumanist theories have been used and developed the most.²⁰ For example, Hultman (2011) uses an actor-network theory approach in order to study children's engagement with materiality in a renewed way. Hence, a spade, chairs, or a ruler are not only tools for the human agent to make use of, but also agents that affect the child and co-constitute their subjectivity. Taylor (2013) proposes a view of childhood as learning with the common world of children's everyday lives. In Taylor's (2013) Australian studies, this means learning with

¹⁸ There are a few exceptions, for example Davies (2009) and Edwards (2012).

¹⁹ Both post-anthropocentric and intra-relational approaches exist in research on education, but with a preponderance of the research addressing post-anthropocentrism. The two approaches are presented here as separate to map out the use of posthumanism in educational research in a more comprehensive way; however, they are usually connected. All the intra-relational examples of this section also apply a post-anthropocentric approach to their research, though all post-anthropocentric examples are not intra-relational.

²⁰ One reason could be that in younger children's lives the materiality of learning is more important since their language is not yet fully developed. The organization of early childhood education is also more flexible, allowing children to discover by themselves through experimenting and playing, rather than through the more formalized education that primary and high schools demand. See also Taylor (2013).

kangaroos, eucalyptus trees, chicken, and poisonous snakes. In a similar way, Lenz Taguchi (2010) argues that pedagogical documentation in Reggio Emilian preschools functions as an active agent in the learning environment.

Two posthumanist areas that have been studied in education are technology and animals. These will be discussed in more detail in Part III, so only a few examples will be brought up here. Technology is often studied using actor-network theory, for example in studies on virtual learning environments (Sørensen, 2009; Jensen, 2005). Another example is Bodén (2015) who analyses the school absence registration computer software from Barad's view on entanglement of time, space, and matter. Animals have been studied from a critical animal studies perspective, for example Pedersen's (2010a) study on animal caretaker education. Blaise (2013) takes a different approach, using animals as figures to challenge thoughts around children, race, and class in contemporary Hong Kong. In all these examples, the animals and technology are active agents in relation to human beings. What varies is the degree to which the agents are seen as being part of a temporary interaction or a part of a deeper entanglement.

In curriculum studies, the main focus has been to rethink the human subject as an entanglement with biosciences and technology following the notion of posthuman subjectivity (Weaver, 2010). The entanglement between the human and (bio)technology is also of interest for science education (Gough, 1993, 2004). The focus on the posthuman subject is also prominent in other texts by curriculum researchers (Snaza et al., 2014; Petitfils, 2015).

Post-anthropocentric approaches to educational research have also been used to study architecture (Juelskjær, 2014, Davies et al., 2009), environmental education (Stables & Scott, 2002; Bonnett, 2004), and educational health programs (Gunnarsson, 2015).

As stated above, in educational research the area of early childhood studies has assimilated posthumanism to the greatest degree, and it is also in this area that discussions on intra-relationality are found. Lenz Taguchi (2010) reads the tradition of Reggio Emilia with a posthumanist gaze and with a turn towards ontology instead of the earlier dominating epistemological traditions. Above, Taylor's view on the childhood as a post-anthropocentric arena was presented. She is also a part of the Common World Childhoods Research Collective, which often turns to intra-relational approaches such as the philosophy of Haraway (Blaise, 2013; Taylor, 2013) and indigenous ideas (Somerville, 2014; Taylor,

2013). The following is one example on an intra-relational view on childhood: “We note that children now live in a complex mixed-up world characterized by high mobility and diversity, digital technologies and divides, blurring boundaries and an increasing awareness to the interdependence of our lives.” (Taylor, Blaise & Giugni, 2013). Children are not considered to be entities existing in the surrounding world but rather living as an entangled part of the intra-relational world.

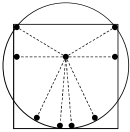
Intra-relational approaches to educational research have also been used to study gendered subjectivities (Juelskjær, 2013), lifelong learning (Edwards, 2010), multicultural education (Nxumalo, 2012), profession studies (Ørsted Sauzet, 2015), art in education (Camden Pratt, 2009; Olsson, Dahlberg & Theorell, 2015), and affect (Juelskjær, Staunes & Ratner, 2013).

Posthumanism and educational relations

There is a large selection of studies containing critiques of humanist ideas and ideals, both within educational relations and the philosophy of education. However, when it comes to posthuman approaches, more specifically post-anthropocentrism and intra-relationality, the humanist critical ideas fall short. The main posthuman work on educational relations is Davies’ (2009) analysis of pedagogical encounters focusing on a Deleuzian distinction between difference and differentiation, which basically follows the intra-relational aspect discussed in this thesis. In Edwards’ (2012) philosophical article, the author criticizes representationalist views on epistemology that separate a knowing subject from an object with fixed properties. Instead, he draws on Barad’s (2007) ethico-onto-epistemology where entanglement of object and subject (or matter and meaning), is central. Edward’s discussion is of great interest in relation to this thesis, and will be returned to in forthcoming analyses.

Accordingly, instead of primarily turning to the scanty posthumanist research on educational relations and/or philosophy of education, the main inspirations for this thesis drawn from educational research consist of some of the posthumanist empirical studies previously discussed. One study is of particular interest to this thesis, namely Lenz Taguchi’s (2010) study on pedagogical documentation and the introduction of an *intra-active pedagogy*. Drawing on Barad and Deleuze (together with Guattari), she proposes a view in which the intra-actions of education are used to emphasize the agential materiality of education. No agent is acting on its own, but all agency is generated through “entangled becoming”. Lenz Taguchi (2010) analyzes binaries such as theory/practice, mind/body, and

material/discursive, using Barad's entanglement of ontology and epistemology as a binary disruptive idea. Further, she criticizes the way learning is seen as a process within a separate human individual, and proposes a view of learning as a series of post-anthropocentric intra-actions in a state of potential transformation. Lenz Taguchi's (2010) intra-active pedagogy is not explicitly a theory of educational relations. However, being both post-anthropocentric and intra-relational it has plenty to offer the process of creating a posthuman theory of educational relations.



CHAPTER 2. Haunting Humanism

It is so overwhelmingly humanist. And I think any of the important words you find, you can't rule out, so you are going to have to use them, but they're always pulling us over to a humanist discourse.

—Donna Haraway

Introduction

In Chapter 1, two central problems with intersubjective theories were localized: anthropocentrism and subject-centrism. In contrast to the humanistic background of these problems, the posthumanist theoretical framework of this thesis focuses on post-anthropocentrism and intra-relationality. In this chapter, it is the humanist background that is of interest. How are anthropocentrism and subject-centrism connected to humanistic ideas, and what is the connection between intersubjectivity and humanism? Finally, in what way does humanism play a role in educational ideas?

Another motivation for this chapter is the idea that in posthuman theory and posthuman educational research it is common to refer back to humanistic ideas and ideals (cf. Braidotti, 2013; Wolfe, 2010; Snaza, 2015; Taylor, 2013; Lenz Taguchi, 2010). Each description of humanist heritage is based on the posthuman stance that is being argued, usually in order to criticize the anthropocentric idea of the rational individual subject. This chapter strives towards an understanding of the humanistic influence on the field of educational relations. In order to approach humanism from this perspective I will generally not repeat other posthumanists accounts of humanism. Instead, I will develop an understanding based on anthropocentrism and subject-centrism in direct relation to various humanist directions. This way the chapter can provide a more nuanced picture of in the manner in which humanism has been

“haunting” education, but it also illustrates why educational relations and this thesis still have to deal with this “haunting humanism”.

This chapter is structured as follows. First, the departure is set in a discussion of the phrase “Western humanism” in the Swedish curriculum in order to show the presence of humanism in everyday educational discourse. After this introduction, summaries of four humanistic stances are presented: Renaissance humanism, Enlightenment humanism, Bildung humanism, and liberal humanist education. The concept of humanism is seen as a placeholder for various camps and is used to define what each argues as a definition of what is human. Even if the four versions differ, the common denominator is the centric position of the human being. In order to keep the animals in the periphery, an emphasis on the rationality of the human mind is central in humanist thought, especially in Enlightenment humanism. Studying humanistic ideas closely shows that there is a great deal of variation within and among different humanistic traditions. Even if rationality and individualism are emphasized characteristics, especially in Enlightenment humanism, these aspects were also balanced with contrasting ideas such as passion and society. Further, a critique of the connection of rationality, education, and socialization is performed. The human/animal separation is discussed as a consequence of valuing human-exclusive traits (e.g. rationality, spoken/written language) more highly than the ones shared with animals (e.g. body, emotions, intuition). The chapter also discusses the connection of various centric positions such as the human, European, or male center, and the postcolonial and feminist decentering strategies.

“Western humanism” in Swedish curriculum

In the year 1992, there was a debate taking place in Swedish educational political reform that also reached the news media and entered into cultural debate. The national curriculum committee published their commission report titled “Skola för bildning” (Utbildningsdepartementet, 1992). The report suggested a revival of the Bildung concept and was the foundation of the new curriculum that arrived in 1994. However, the debate wasn’t initiated primarily as a result of the report’s profile or its immediate content. What caused the debate was that it was stated that the core values of schools were based on, among other things, Christian ethics and Western humanism (Utbildnings-

departementet, 1992). Previously, the core values had been ascribed as being connected to our contemporary democratic society (Englund & Englund, 2012). After some debate²¹ the phrasing was slightly adjusted from the commission report to the new national curriculum in 1994. The final phrase says “in accordance with the ethics borne by Christian tradition and Western humanism” (Skolverket, 1994, p. 3). This phrase has been continuously debated through the years but still exists in the national curriculum (Skolverket, 2011).

The debate mainly focused on the phrase “Christian tradition”. Since Sweden is a fairly secular country and was at the time developing into a society with greater multicultural awareness due to increasing migration, this formulation came across as reactionary rather than visionary. The second part of the phrase, “Western humanism” was less debated. After all, to be humanitarian, to be humane, concepts evoked by the notion of humanism, sounded like an ideal of being a good human being—who could disagree with that? However, Fjällström (2010) argues that what is problematic is the humanistic aspect rather than the Christian one. It is problematic because it is unclear what it refers to: Renaissance humanism, rational Enlightenment humanism, Bildung humanism, or liberal humanism? The defining characteristic of humanism, Fjällström (2010) argues, is the worship of the human race, or rather, a particular kind of human exceptionalism which often excludes those humans, and nonhumans, that are considered of lesser value. So what actually is humanism?

Humanism as a placeholder

Humanism is a common Western concept that has historically been used in a wide range of ways to describe a variety of ideas: the flourishing of rational individuals, the common values of all human beings, an exclusive group of educated wealthy men, the engagement of human emotions, civilized human beings in contrast to wild savages, the renaissance era, an educational ideal based on canonical material, a contrast to the natural sciences, or simply secularism.

²¹ As a result of the 1991 election, the Christian party, Kristdemokratiska Samlingspartiet (kds) formed the government for the first time. Succeeding in having a framework based on Christian ethics incorporated into the national curriculum meant a great deal to the party. See also Englund and Englund (2012).

And the list goes on; humanism is not *one* idea. Hansson (1999) states: “Instead of considering humanism as a concept or an idea, the discussion on humanism should be viewed as an ongoing struggle to define the human, which is the only common denominator in all varieties of humanism” (p. 22, my translation). Humanism is not a stable concept, but rather a placeholder that has been filled with different content throughout history. However, it has one common denominator: the human. What a human is, and what its relation to the world is, are the central of all humanistic thought. That said, not all eras have been equally successful in creating an answer to that question. In contemporary debates, humanism is often reduced to meaning only one particular thing, namely the rational, individualist Enlightenment concept of humanism, since the Enlightenment period successfully formulated a vision of the modern human being.²² Before developing that discussion further, some background on the concept may be helpful.

To start with, the concept of humanism is constructed from the Latin word for being human, *humanus*.²³ In the ancient Rome, where the concept was used, *humanus* also required a specific kind of human. *Humanus* was what distinguished, and separated, the civilized human beings from animals and the barbarian peoples. At that time, barbarians consisted of anyone outside the Roman Empire. A real human was instead a civilized, being equipped to live with other people. The human was also the *rational animale*, that is, a human held a privileged position as a specific kind of animal, separating it from all other animals. This included the belief that the human should also make use of his rational gift, and educate himself. I write “himself”, because most often the human was considered a man. Therefore, *humanus* was also someone who was well educated. Already, by looking at the Roman use of the word, one notices several threads that return in different shapes throughout the history of Western humanist thought. Here is a summary of the different aspects it embodied: (i) The definition of the human, excluding other humans from this category (e.g. women, other races); (ii) The separation of human and animal; (iii) The focus on rationality and reason; (iv) The human should educate himself; (v) The

²² What is intended here is to show the ways in which educational relations and posthuman philosophy discuss humanist thinking. Another dominant humanism is Renaissance humanism with its focus on the reading of antique texts in order to cultivate the human being.

²³ This section is informed by Davies (2008), Liedman (1997), and Hansson (1999).

human is first and foremost an individual. These aspects will be explored in more detail below.

Four humanisms

In this chapter, it is argued that the view of the human can be traced by studying the concept of humanism. When studying the checkered history of the humanism concept, what it all boils down to is that there is no single tradition of thought that can be said to be “Western humanism”. Instead, I will distinguish between four different humanistic stances that delivered various emphases concerning what or who the human is and should be with regard to education: Renaissance humanism, Enlightenment humanism, Bildung humanism, and liberal humanistic education.²⁴

The Renaissance era was an optimistic, yet nostalgic, era in which people believed that the human would be culturally reborn following a long period of Christian religious domination. Therefore, the Renaissance movement searched for inspiration in the pre-Christian tradition, that is, in antiquity. The study of antique literature, art, and philosophy was believed to educate and enable the newborn Renaissance man to flourish. From this era, the humanism concept was connected to the concept of a classical humanist education. In the Renaissance era, the goal was to learn about truth, which one did by studying science and learning from canonized works. The aspect of reason and the individual value of each human being were emphasized.

Enlightenment humanism, on the other hand, didn't rely on any former tradition for inspiration, but argued that man could educate and create by himself. Central thoughts contained in this perspective are rationality, education, liberty, and individualism. The purpose of man was to flourish, grow, succeed, and develop. Enlightenment humanism is probably the humanist perspective that has had the largest impact on educational theory, at least when it comes to ideas about educational relations. Therefore, it will be discussed at length below.

²⁴ Classifications of humanistic history are performed in different ways. For instance, Peters (2015) makes a distinction between classical humanism, Renaissance humanism, Enlightenment humanism, and liberal humanism.

Bildung humanism was developed in contrast to Enlightenment humanism's focus on progress, rationality, and individualism, which was seen as not taking the full potential of the human being into consideration. Instead, this German tradition created a more harmonious humanism focusing on physical and spiritual health, freedom, and aesthetics. All the aspects of the human should be self-cultivated. Herder (2012) was one of the central figures with his ideas on unbroken human beings, and his enhanced ideas concerning the uniqueness of the specific, for example specific cultures around the world. This idea is connected to a critique of universal truths and encyclopedia-oriented thinking, and is sometimes referred to as relativist or objective pluralism (Berlin, 2000). However, this kind of humanism originated from a holistic idea of identity that sees maturity as finding the individual's mind and heart in order to become or remain "unbroken". Bildung humanism also deals with the balance between educating students to free individuals, but at the same time preparing them to a life in the social community. Thus, the connection between individual and the social that appeared in discussions on intersubjectivity has a connection to Bildung humanism. An individual is one part of a collective, and a collective consists of several individuals. As argued in Chapter 1, this dualism is problematic for educational relations because it is still subject-centered, instead of starting from an idea of relationality.

Finally, liberal humanist education consists of three goals: quality of culture, autonomous and critical thinking, and authentic personality (Aloni, 2007). This humanism is no longer based on a particular essence of the human, but includes all students through a reference to The Universal Declaration of Human Rights, as introduced by the United Nations. The problem of universalist thinking is that it is often projections of someone's own ideas and ideals. A central contemporary figure for liberal education is Nussbaum (2000, 2010) who supports the universal human rights, and has also argued for the propagation of some basic universal values. A secular education for all is central for Nussbaum's (1997) position.

The rational educable subject

A central clue to understanding intersubjective theories is the powerful influence the Enlightenment idea of the rational educable subject has had on the educational field. Therefore, Enlightenment humanism will be discussed here with a focus on rationality.

The first self-defining era

Foucault (1984) argues that the Enlightenment was the first era to known by the same name it was referred to in its own time. It is, claims Foucault (1984), a particularly strange process to actually name one's contemporary time. It requires a consciousness of one's own position, but it also makes it possible to point to the operations that must be accomplished in this particular time.

The self-defining aspect of the Enlightenment also contributed to the fact that people of the Enlightenment were particularly interested in contemporary writing.²⁵ Is this really unique? The Renaissance era was heavily inspired by the antiquity, and the romanticism found influences from the medieval period. Hence, looking back through history is a common way to find inspiration, but something that the Enlightenment thinkers did to a lesser extent (Foucault, 1984). Why? There was simply no previous era that shared their interests. They found no forgotten era in which the human and his reason were as highly elevated and as highly cherished. Therefore, the Enlightenment era produced plenty of important philosophical, scientific, and cultural works, and has since its own time served as the inspiration for other movements (Davies, 2008). The contemporaneousness of the Enlightenment also created a unique sense of exclusivity and being able to create new visions for the future. The point here is that the contemporary human being was placed at the center of development, and that s/he was responsible for this development by her/himself.

Adorno and Horkheimer (2002) argue that the Enlightenment program was part of the disenchantment of the world due to its targeting of religious and superstitious beliefs. However, it also had a strong agenda for the idea of individual liberty. Kant (2009) argued optimistically that even if the Enlightenment era were to eventually end, the idea of the Enlightenment would survive since it was the true nature of man that had been revealed. Therefore, the Enlightenment could fall into oblivion but would continue to live, Kant (2009) claimed. Foucault (1984) does not dedicate himself to Kant's ideas fully, but he did agree that the Enlightenment presented a new philosophical problem that has occupied the thinking of modern man and philosophy ever since: the question of reason. It is reason that is used in contrast to beliefs such as religion, magic or superstition (Adorno & Horkheimer, 2002).

²⁵ For some examples, see Macaulay (1996, 1763–1783) or Hume (2007).

In 1792, Wollstonecraft concluded the nature of the human being as follows:

Consequently the perfection of our nature and capability of happiness, must be estimated by the degree of reason, virtue, and knowledge, that distinguish the individual, and direct the laws which bind society: and that from the exercise of reason, knowledge and virtue naturally flow, is equally undeniable, if mankind be viewed collectively. (1996, p. 11)

Wollstonecraft (1996) argued from a strong standpoint of human exceptionalism, focusing on language and reason, a typical stance for Enlightenment humanism. From this perspective, it was knowledge that could lead to human flourishing and exceptionalism. Another typical text is Kant's (2009) *An Answer to the Question: What is Enlightenment?* originally published in 1784. He argued that human beings should step out of their tutelage, and make use of the reason they had been given. In Kant's view, nature had created the human with a seed inside; this seed was charged with the will to free thinking. It was in accordance with human dignity to develop this seed and to make use of one's own reason. Regarding moral thinking and rationality, Enlightenment humanists did not abandon religion, they simply redefined it. Kant (2003) argued that the moral aspect was to be dealt with in the schools by the teachers. This was new idea at the time, in that moral issues had previously mainly been a religious affair for the priests to handle. Instead, Kant's argument consequently led to an idea of secular humanistic education with less superstition and more scientific thinking. In this way the dominant religious position was replaced by a pluralism of parallel ideas that could be debated. Another example of this is the Enlightenment historian Macaulay. In her writing on moral questions, she simultaneously argues for a belief in God, and in a belief of development leading to the perfection of the human kind, on both an individual and a societal level. It is not until the second half of the 20th century that the tension between humanism and religion became a problem. Today, scientific humanism has cut off all ties with religion and is critical of any religious involvement in scientific or political issues (Vanheste, 2007).

The rational Enlightenment human is to a high degree something created historically as a typified being, at least when it comes to the one-sided descriptions of rational Enlightenment individuals. For instance, although the rational aspects are enhanced, there is also room for sensibility and passion. Wollstonecraft (1996) argues, "For what purpose were the passions implanted? That man by struggling with them might attain a degree of knowledge denied to

the brutes” (p. 11). Hence, the passions were given to humans in order to create a dynamic struggle with reason. A similar approach is proposed by Hume (2007). He argues that passions are the driving force of human nature. Hence, even if the idea of rationality is prominent in Enlightenment humanism, it does not exclude other aspects. To label contemporary humanism as individualistic rational Enlightenment humanism is therefore an oversimplified model. At the same time, reason is the main aspect that is generally recalled from this period, making it relevant to talk more specifically about it, although, it is important to remember not to discuss periods or theoretical directions as entities with fixed properties, but as tools to solve particular problems. For the field of education, rationality and the flourishing of the individual have been ideas that have helped to develop education. This will be discussed next.

Education and Enlightenment humanism

The Enlightenment era thinking has had a strong influence on the concept of humanism from Kant until today, especially in education. Why is that? Well, since the Enlightenment thinkers produced an idea of the individual and the society as things that were bound to change as a means of fulfilling their true potential. This idea goes hand in hand with the modern educational project. Instead of letting parents teach their children their own view on the world, it was up to the state to educate its inhabitants as a means of instilling objective knowledge and good morals. The encyclopedian concept of universal facts that could be transferred from teachers to children is based on a linear idea of progress. Knowledge is seen as consisting of passive representations for the active teacher to transfer to passive students—or, a passive content for the active student to learn himself/herself. Still, the Enlightenment humanism supports what was discussed in Chapter 1 as an intra-personal approach to learning (Lenz Taguchi, 2010).

Biesta (2006) argues that the problem with humanism is that it “posits a norm of humanness, a norm of what it means to be human” (p. 6). This presupposes that human beings can be judged based on how they fulfill this norm. In his critique of humanist thinking, Biesta (2004) places Kant at the center of the discussion. Kant’s idea is to develop a human subjectivity based on rationality, individual autonomy and critical thinking. Rational autonomy is not considered to be a cultural phenomenon; rather, it is a natural human state of being that had to be affirmed in order to bring forth the ideas of the Enlightenment. Kant claims that it is precisely through education that humans transformed into rational autonomous beings, and that this is the essence of humanity. Hence,

Biesta (2010) states that Kant created a connection between education and freedom,

by making a distinction between heteronomous determination and self-determination and by arguing that education ultimately had to do with the latter, not the former. In a sense, therefore, it was only after Kant that it became possible to distinguish between socialization and subjectification. (p. 77)

This idea later became one of the central questions in Bildung humanism. The problem with Enlightenment humanism, according to Biesta, is that Kant presumed that there existed a static answer to the question of what it meant to be human, “which left those who were considered to be not or not yet rational, including children, in a ‘difficult’ position” (Biesta, 2010, p. 77). This is the connection between humanism and intersubjectivity. It also explains the use of these ideas in educational relations. Biesta (2006) argues:

The step from consciousness to intersubjectivity has effected a crucial shift in Western philosophy, as it has opened up new and different ways to understand subjectivity and, more specifically, to understand the relationship between the subject and other subjects. In the tradition of philosophy of consciousness it is assumed that my thinking precedes my encounter with the world – a world that includes other subjects. In this scheme the other appears first of all as an object of my consciousness, an object of my experience and knowledge. The intersubjective “turn” in twentieth-century philosophy has questioned the apparent self-evidence of *ego cogito* and has opened up new avenues for understanding human subjectivity. (p. 37)

The intersubjective approach that Biesta and others address involves changing the humanism paradigm into something more flexible. Instead of focusing on what or who the stable being is the focus is instead on the process of becoming through relations with other human beings. This approach is central in many educational ideas, especially educational relations, as was discussed in Chapter 1. For now, it is important to recognize how the intersubjective theories of educational relations are deeply connected to humanist ideas and ideals.

Critique of the centric subject

As stated previously, Enlightenment humanism held the concept of the individual as a central position. The subject-centrism for which intersubjectivity was criticized in Chapter 1 seems far more relational when compared to the

individualistic view of the Enlightenment educable subject. This position returns also in other versions of humanism, for example, in *Bildung* humanism, the goal is for the individual to find its potential and discover its identity through self-cultivation. In relation to liberal humanist education, Nussbaum's (1997) approach has been criticized for being based on an autonomous subject (Adami, 2014). Hence, the individual educable subject and its centric position are central to humanistic thought. *Bildung* humanism is perhaps less centric in that it also emphasizes the individual as a part of the larger community. The problem with the individualistic centric position is that it also disregards the periphery.

The human who was in center of Enlightenment thought was of a particular kind of human, chiefly male, European, and socioeconomically well off. Accordingly, artifacts from the Enlightenment often depict rows of men, but its history also contains important women. Women were indeed excluded from official educational and scientific arenas; instead women could enlighten themselves by reading at home or by using a private tutor. An exception to the prevailing male dominance of the era can be found in the Russian Enlightenment promoted by Empress Catherine the Great, who reigned from 1762–1796, that is, during most of the important years of the Enlightenment. She reformed the education system, in addition to Russia's extensive bureaucracy, using Enlightenment ideas and ideals (Henderson, 2005).

Since both problems localized with respect to intersubjective theories are problems with centrism—subject-centrism and anthropocentrism—some words on the common critique of humanistic ideas in this regard could be helpful. Manga (2013) argues that poststructuralist theory is important because it deals with the end of Western and humanistic dominance. Or, rather, that its perspective offers “a language that supports a de-centered view of the world” (Manga, 2013, p. 49). Most poststructuralists worked with some kind of de-centering project: Irigaray (1993) and Kristeva (1991) criticized the male-centered positions, Said (1978) criticized a European centric position, Wittig (1992) criticized heterosexual normativity, Derrida (1978) worked with deconstructing language, Laclau and Mouffe (1985) posed a critique on hegemony from class perspective, and Foucault (1970, 1972) developed methods to decipher power discourses in the society. They all criticized the main humanist project of defining or universalizing the subject, and demonstrated in different ways how the definition never escapes being biased. The kind of

subject that humanists talk about is a mere construction of different majority positions that hold inherent privilege and expressions of power.

Postcolonial theory has argued that humanistic ideas were one of several ideas that contributed to, or justified, the long and dark history of Western colonialism, slavery, and institutionalized racism (Said, 1978; Fanon, 1967, 1969). For the Enlightenment humanism, the question of progress was very important, which was also later the case in the modernist era. Hume (2007) argued that different places around the world had developed unevenly. Hence, the European was considered the most developed, and therefore could –and should– “help” others to develop to the same civilized level. These so-called civilizing missions go hand in hand with the colonization project. As a commentary on colonial ideas, Spivak (1988) argues that the idea of the subject and the idea of the West have proven hard to separate. From the West-centric perspective, the subject is viewed as a Western subject, and the non-western is seen as an Other: “the persistent constitution of Other as the Self’s shadow” (Spivak, p. 24). This tendency of “othering” is not exclusive to non-western subjects but can be applied to any subject inhabiting a subaltern position, whether by class, race, gender, or the like. There is one quote from Spivak, actually more a parenthetical remark, which is of particular interest in this regard: “Let us now move to consider the margins (one can just as well say the silent, silenced center) of the circuit” (p. 25). Here, Spivak, in a playful way, suggests that the margin is not only silent/silenced, but that it is actually also a center. This questions the very idea of centric thinking and stable world orders. Questioning the static is a common post-structural critique of humanistic thought. A posthuman approach to this problem will be developed as ‘flat ontology’ in Chapter 3.

As became obvious above, centric thinking has severe consequences embedded within it. In order to maintain a feminist and ethical approach to a theory, centrisms must be rethought. The next section will discuss another centrism, anthropocentrism, and how this centrism is deeply embedded in humanistic thinking.

Birds, brutes, and human superiority

In what does man's pre-eminence over the brute creation consist? The answer is as clear as that a half is less than the whole; in Reason. (Wollstonecraft, 1996, p. 11)

Wollstonecraft (1996) is one of many Enlightenment, and humanist, thinkers who have defined the human in contrast to animals. The idea is simple: the human race is believed to be superior. In order to explore this superiority, and through that the human condition, a common idea is to explore the difference between humans and animals. For Wollstonecraft (1996), and for many other thinkers from antiquity to today, the human ability to reason is found as a distinctive quality. Another aspect that often comes up is the human linguistic ability (Aloni, 2007). What are not usually considered are unique abilities in other species that humans lack, such as dogs' sense of smell or the echolocation systems of bats. The idea of human centrism and superiority governs the way distinctions between humans and animals are made.

In the introductory quote, Wollstonecraft (1996) uses the concept of a brute, which here means describes an animal but which can be interpreted in other ways. Wollstonecraft (1996) argues that reason, which is the property that distinguishes the human from the brute, is connected to the idea of human superiority. On several occasions, Wollstonecraft (1996) uses the concept *brutalize* in connection with certain groups of human beings. In one text, she asks: "Is one half of the human species, like the poor African slaves, to be subject to prejudices that brutalize them?" (as cited in Ruston, 2013, p. 33). She also writes about a woman from the lower classes who is brutalized. Hence, the word brute not only means animal, but is also used in order to signify other positions that "indicate an animal-like insensibility" (Ruston, 2013, p. 33). To be subjected to prejudice is to be defined as a brute, or an animal. Processes of brutalization originate in structures constructed on the basis of persons who consider themselves better humans. Wollstonecraft (1996) is sometimes described as one of the first feminists, and the argument here shows insights of the relationships between different power structures. However, when it comes to the position of the human being, Wollstonecraft did not contribute to this decentering.

While Wollstonecraft (1996) builds her human/animal distinction on the idea of human superiority, Kant (2003) begins from human/animal observations. Kant (2003) writes: "Man needs nurture and culture. Culture includes discipline

and *instruction*. These, as far as we know, no animal needs, for none of them learn anything from their elders” (p. 5). With this quote Kant (2003) is searching for a definition of not only what the human *is*, but also what the human *needs*. The argument of the definition here is based on the difference between the human and the animal, a distinction that already existed in the definition of *humanitas* from the ancient Rome. Hence, the aspects that are defined as exclusively human are given more attention than aspects that exist in humans and in animals. The eagerness to find a true human essence lead towards a split view of the human: a “human exclusive” aspect and a “similar to animals” aspect. Rational thinking and language are given a higher value since they are human exclusive aspects. Here Kant (2003) argues that in order to develop a rational mind, education is also needed. Accordingly, education is clearly a humanist project that is rationality and language-centered. More recent development in neuroscience and psychology have contributed further to what can be described as brain-centered or cognition-centered approaches to education, which resemble the humanistic logic. The human-exclusive position is also given great importance since it, from a humanist perspective, is believed that education grants humans their uniqueness.

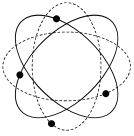
However, the argument surrounding the human-exclusive aspect is not waterproof. Here the continuation of Kant’s (2003) quote above is as follows:

... for none of them learn anything from their elders, except birds, who are taught by them to sing; and it is a touching sight to watch the mother bird singing with all her might to her young ones, who, like children at school, stand round and try to produce the same tones out of their tiny throats. (p. 5)

At this point he continues to lyrically describe scientific experiments involving moving the chicks of different kind between soundproofed rooms exposing them to adult birds to study how their songs develop. This way one can prove that birds don’t singing by instinct, but that the singing is actually taught. What appears here is an exception, which Kant (2003) is so fascinated by that he might not realize that it disrupts his main argument of education as a human affair. Ethological research would today argue against Kant’s (2003) claim that no animals except the birds learn from their elders. The point is not to prove Kant (2003) wrong, rather to show that a particular way of defining the human as different from animals is fairly common in humanist thinking, perhaps so common that the argument is used even when the writer presents contradictory evidence. This implies that the idea of the unique superior nature of the human

is a given for Enlightenment humanism. Ideas similar to Enlightenment humanism can be traced in other humanistic schools of thought. In liberal humanism, Aloni (2007) argues for the use of similar arguments in order to separate humans from animals, placing more value in human-exclusive properties and less in qualities shared with animals. Instead of trying to identify the border between humans and animals, Herder (2012) uses another strategy, namely he completely avoid such identification. Herder was one of the influences on Bildung humanism. In fact, not only does he avoid the border, he argues that straying too close to it could be dangerous. The risk is that human beings could ‘slip’ into animal behavior, disrupting the cultivated life and society humans created through, among other things, dominating the animals. Though, Herder (2012) does mention that humans are born rational and linguistic, and that they never act entirely out of instinct (as animals do). Herder saw the qualities that supposedly distinguish humans from animals as dichotomous and oppositional: man/animal and reason/instinct are the distinction between pure and abject (Oliver, 2006). Accordingly, what he saw as the “unbroken human” was only characterized by human-exclusive properties, not the ones humans might share with animals.

To conclude, ideas drawn from the various humanist schools of thought tend to agree when it comes to the question of the supremacy of the human being and the belittling of the animals. Anthropocentrism is fundamental to humanism. Animals are definitely not part of any relations, other than as beings that are used to fulfill human desires. Here, it is easy to localize a clear distinction with respect to the post-anthropocentrism of the theoretical framework of this thesis. In this regard, posthumanism does not build upon humanistic ideas, but completely contrasts them.



CHAPTER 3. Framing Posthumanism

An understanding that relations are central to everything would be the first guiding principle.

—Africa Taylor

Theoretical beginnings

In Chapter 1, two central problems with intersubjective theories of educational relations were localized. The first was that these theories disregard agency in nonhumans, taking only human subjects into account; thus, they are anthropocentric. The second problem was that relations occur as the result of a process in which primarily separate subjects enter into an interaction, becoming through the relation and finally leaving it as a different person. In addition, it is only the learner who leaves as a different person. In short, the intersubjective relations are subject-centered. In Chapter 2, it was argued that these two problems can also be found in humanist thought. Accordingly, the background to both of these problems can be localized in the field of educational relations and in the humanistic theories that posthumanism is works with.

Therefore, *post-anthropocentrism* is introduced in contrast to anthropocentrism and *intra-relationality* is introduced in contrast to subject-centrism. These two concepts constitute what in this thesis is meant by *posthumanism*.

Braidotti (2013) states that posthumanism relies on two foundations: a critique of humanism and a post-anthropocentric critique. The former involves a more direct critique of humanistic ideas, as discussed in Chapter 2. In this work, this discussion is inherently present, but not highlighted. Instead, it is the second aspect of Braidotti's (2013) distinction, *post-anthropocentrism*, that will be dealt with. Post-anthropocentrism begins with the notion of not placing the human

at the center. A post-anthropocentric approach starts from the idea that all aspects—human and nonhuman—are agential; therefore no single aspect has precedence. When posthuman theories and the field of educational relations meet, obviously the aspect of relations comes into focus. In what way can a relation be understood from a posthumanist perspective, where the starting point is other than the centric position of the subject? Here, I will add a third thread to Braidotti's distinction of the two foundations of posthumanism, namely an intra-relational critique. The concept *intra-relationality* basically means that the relationality, and not the entities involved in the relation, constitutes the philosophical foundation. For Braidotti (2013), intra-relationality is partly included as an aspect of post-anthropocentrism, but is not approached as an aspect that undermines the importance of the position of the subject. In this work intra-relationality will be emphasized more clearly. Therefore, I will mainly build intra-relationality on two other posthuman feminists, namely Karen Barad (2007) and Donna Haraway (2003, 2008).

The posthuman conceptual flora is quite rich, partly because a common philosophical strategy is the creation of new concepts (Deleuze & Guattari, 1994; Haraway, 2004), but this chapter will stick to the two concepts of the theoretical framework as motivated above. It is emphasized that the mapping of the two concepts is not made in a classificatory way with the goal of finding the concepts that best represent posthuman philosophy. Neither is there an interest in discerning differences between categories or themes; rather, the aim is to realize entanglements and acknowledge the artificiality of the categories or concepts. This is a mapping with regard to the aim of the thesis but also with regard to entanglement and comprehension. Hence, the two concepts of the theoretical framework are adapted to solve the problems of intersubjectivity. The idea is that the reader should be able to manage reading the thesis with only these two concepts at mind. When other concepts are used in this chapter, they usually mean something related and are used to highlight a particular aspect of the theoretical framework.

This chapter will start with a brief introduction to posthumanist ideas, before turning to the two concepts of the posthuman theoretical framework, post-anthropocentrism and intra-relationality.

A brief introduction to posthumanist thought

Posthumanism is both a development of, and a contrast to, humanist thinking. In order to understand what posthumanism could offer as a contrasting concept,

*post*humanism can be seen as *non*humanism or *pre*humanism.²⁶ In order to remain open to new ideas, inspiration for *post*humanism also comes from times and places where humanistic notions were not the governing ideas.

Indigenous philosophies can function as valuable contrasts to humanist thinking and as an inspiration for *post*humanist philosophy.²⁷ For example, in indigenous philosophy, the human being is usually not governing the nature, but is a part of it. Nature is not seen as a resource ready to be exploited in order to maximize profit; nature is maintained by taking what one needs from it and not disturbing it any more than necessary. This is a consequence of the view that all parts of the world are interconnected, which contrasts a humanistic individualistic or anthropocentric worldview. Generally, the view of human beings as a part of a connected ecological system is common.²⁸ In addition, the idea that everything is connected and entangled is central. Agency is not a human exclusive aspect but agential relations also involve rocks, trees, wolves, maggots, and the like. Accordingly, the idea of connectedness and agency in relations also suggests that the world constantly changing.

The notion of everything being in constant change is not a common idea in Western thought (Pritscher, 2001; Olson, 2000). As Pritscher (2001) observes

Westerners want closure and definiteness. The freedom of nonduality is not highly desirable to some Western thinkers, since openness is continuous and ongoing, and as an unnamed sage said, nonduality is terminally unknowable. (p. 17)

²⁶ The concept of *pre*humanism is normally used to describe the very start of the humanistic Enlightenment era (Witt, 2000). Hence, the word play in question here will not be used as a concept in the discussion that follows.

²⁷ This section is informed by a broad range of texts on indigenous thought, for instance Cajete (2000), Tuck and McKenzie (2015), Mika (2012, 2015), Calderon (2008), Taylor (2013), Gannon (2009), and Marsden (2003).

²⁸ What is of primary interest here is the way in which their ideas differ from humanistic ones. However, even if Western colonization has treated indigenous people terribly bad, one must be careful not to project simplistic images of indigenous people or pre-industrial/pre-agricultural humans as innocent, peaceful, and sustainable. As a consequence of the *Homo sapiens* arriving in Australia about 45 000 years ago, a majority of the continent's big marsupial species became extinct. The animals were easy prey as they lacked natural enemies that hunted like the humans did. Today, despite the ecological knowledge being available globally, ecological ideas are not common as ideology for modern humans (Harari, 2011).

In an attempt to make sense of nondual notions of constant change, Pritscher (2001) turns to Eastern philosophy, for example Chinese Zen thought. Seeking inspiration in Eastern traditions of thought is a fairly common practice for critics of Western humanism.²⁹ Buddhist belief comprises three marks of existence: impermanence, dissatisfaction, and non-self. Impermanence, *anicca*, symbolizes a view of the world as being in constant movement and an awareness that everything is constantly changing. The notion of impermanence will be revisited in the discussion on intra-relationality below.

With these ideas in mind as examples of what nonhumanist or prehumanist ideas might look like, the contemporary discussion on posthumanism will now continue. Several theories have already worked with critiques of humanism, focusing on critiques of centrism, universalism and representation, as discussed in Chapter 2. For example, the post-structural critique—which resulted in a focus on language, knowledge and discourse—has had a major influence on theories of educational relations.³⁰ One of the critiques of these post-structural focal points is that they are also clearly anthropocentric, and thus value human-exclusive qualities over other ones. In contrast, posthuman theories focus on materiality, body, affect, and ontology.

One final aspect worth mentioning in regard to the context of posthumanism is the contemporary challenges for the world. Braidotti (2013) states that since humanistic and post-structural thought were dealing with ethical questions related to the genocide of the Second World War and other human disasters, these theories also focused on unique human value, the social arena, and the balance between the individual and society. Today, we regard ethical problems not only as human problems, but also as the posthuman problems of the world. Global warming, Artificial Intelligence, pharmaceuticals, war drones, and biological mass extinction are a few global challenges in which humans are entangled with technology and nature in various ways. Therefore, these challenges also require theories that take the nonhuman and the entanglement of the posthuman into consideration (Braidotti, 2013). In this regard, posthuman philosophy has also reread Western philosophers who previously not

²⁹ See for instance Irigaray (2002), Todd (2015a), and Olson (2000).

³⁰ For instance, the work of Biesta (2006, 2009, 2014) and Todd (2003, 2009, 2014) are central here.

had widespread influence, such as Spinoza,³¹ Whitehead,³² and Leibniz.³³ Posthumanism is also closely connected to the natural sciences, such as quantum physics (Barad, 2007), mathematics (Meillassoux, 2008), and ecology (Morton, 2007; Næss, 1989).

To conclude, posthumanism is a checkered collection of thoughts. Therefore, when using the concept of “posthumanism” in this thesis, I intend it to encompass post-anthropocentrism and intra-relationality. The following section contains a discussion on what post-anthropocentrism means.

Post-anthropocentrism

As argued in Chapter 1, the educational field has been particularly prominent in disregarding nonhuman aspects in its theories, and theories of educational relations have not been an exception. Seen from a theoretical perspective, education’s connection to humanist ideas and ideals has created a view of education as something primarily for the benefit of humans, and in which humans are the only active agents. When nonhumans are considered, they are usually given a passive status without any real agency, and are considered as objects of knowledge or instruments to facilitate learning. In this section, the theoretical implications of this idea and the contrasting post-anthropocentric aspect of the theoretical framework will be introduced. First, I will discuss post-anthropocentrism more generally before turning to three aspects that are included in this concept, namely *decentering*, *flat ontology*, and *materiality*. These aspects are presented in order to create a deeper understanding of what the post-anthropocentric theoretical framework means in this thesis.

Post-anthropocentrism is about overcoming “a single, common standard for ‘Man’ as the measure of all things” (Braidotti, 2013, p. 67). As discussed in Chapter 2, the main critique of humanism from a post-anthropocentric approach is the problem of placing the human in the center of everything: society, education, science, and philosophy. This involves the human subject,

³¹ See Deleuze (1988), Dolphijn and van der Tuin (2012), and Braidotti (2006, 2013).

³² See Stengers (2011) and Sehgal (2014).

³³ See Deleuze (1992) and Serres (2003).

but also the ways in which human-exclusive qualities, such as cognitively developed language and reason, are valued more highly than other qualities. The idea of the supremacy of the human species connected to the idea of the strong individual human agent³⁴ has caused many ethical problems. Animals are used and killed in an industrial manner (Wolfe, 2003). The natural resources of the world are used for the purpose of capitalist growth (Klein, 2014). A huge number of animal species are becoming extinct as a result of human influence (Kolbert, 2014; Harari, 2011; Colebrook, 2014b).³⁵ Human beings have changed the very geological conditions of the planet, a situation that has lead geologists create the concept of the *anthropocene* (Colebrook, 2014a). These factors are connected to the idea of the human as the center: the human at the top of food chain using whatever exists below for its own purposes. Post-anthropocentric alternatives are central to critical animal studies, deep ecology, feminist studies, and environmental theories, not to mention posthumanist theories. In all of these academic fields, there are ethical aspects. In this work I deal with posthuman questions from a feminist approach since feminists have a tradition of examining centric positions, such as the human center. I will develop this decentering approach next.

Decentering

Anthropocentrism is not only an ethical matter for nonhumans, but also a question of epistemology and ontology. Bogost (2012) argues that “anthropocentrism is unavoidable, at least for humans. The same is true for any unit (for bats, chiropteracentrism is the problem)” (p. 64). Bogost (2012) was inspired by Nagel’s (1974) article “What Is it Like to Be a Bat?”, which argues that consciousness has a subjective character and that science cannot provide answers to what experience is for another species. Human beings experience the

³⁴ Barad’s (2007) use of “agent” rather than “actor” is applied in the vocabulary of this thesis. In the cases in which “actor” is used, it is either as a synonym for “agent” or in relation to a theory or theorist who prefers this concept.

³⁵ However, mass extinction is not a modern problem, but has been a result the spread of *Homo sapiens* for most of the more than 150, 000-year history of the species. When *Homo sapiens* spread across the world to places that no other human species had inhabited before, they had an enormous impact on ecosystems. For example, during the 1000 years it took humans to inhabit the American continent, about half of the larger mammal species became extinct (Harari, 2011).

world in human ways and bats experience it in bat ways. While science is trying to describe things objectively, it only does so in a scientific and human-centered way. Anthropocentrism might not be fully avoidable but one can at least create philosophies of not taking the human-centric position for granted. According to Braidotti (2010), “This marks a shift away from anthropocentrism, in favor of a new emphasis on the mutual interdependence of material, biocultural, and symbolic forces... a more complex and less oppositional mode of interaction” (p. 203-204). Indeed, post-anthropocentrism is not about bringing the nonhuman periphery into the human center. Rather, it is an ontology that decenters the human from its centric position. One problem with criticizing centric positions is that the aspect that is undergoing a decentering process is still in focus. Therefore, decentering the human involves taking a position in which neither the human nor any other category has primacy.

The distinction between humans and nonhumans is a humanistic remnant that carries ethical and feminist dimensions. To consider something a passive object that the subject can act upon is an individualistic view based on atomistic ideas and humanistic ideals. The human/nonhuman distinction creates the possibility of objectifying and the thing that is objectified is not seen as an ethical subject. Several feminist theories demonstrate how people in centric positions use the strategy of objectification in order to justify their behavior.³⁶ Objectification is based on a worldview where entities are originally separated. These two aspects—objectification and separation—strengthen each other in a circular process. Two central aspects of this circular process are epistemology and learning—or, what is learned and how concepts are learned. Hence, ethics is fundamentally embedded in the process of learning, and it is impossible to disregard it. It is common for feminist theorists who realized the connection between separation and objectification to create theories or resistance strategies based on the opposite, such as caring, affect, dialogue, touch, entanglement, and relationality.³⁷

³⁶ See for example Bauer (2015), Bell (2007), Haslanger (1993), and Nussbaum (1995).

³⁷ Much of the feminist literature contain these aspects. Apart from the posthumanist feminists used in this thesis (see Chapter 3), a wider range of feminist literature has also played an important part in this thesis’ understanding on ethics and difference. To mention a few: Irigaray (1991, 1993), Noddings (1992), Kristeva (1991), Ahmed (2000, 2004, 2006), Wollstonecraft (1996), Yuval-Davis (2012), and Butler (1990, 2004).

In this work, the decentering aspect is important not only for feminist reasons but because of the shift from educational subjects (student and teacher) to educational relationality. Therefore, the theoretical framework stays closer to the work of relational feminist posthumanists, mainly Barad and Haraway. Other posthumanists that do not have the same feminist ethical decentering approach, such as actor-network theory (Latour, 2005; Mol, 2002, 2010), object oriented ontology (Morton, 2007, 2007; Bogost, 2012; Harman, 2011), affect theory (Ahmed, 2004, 2006; Clough & Halley, 2007; Massumi, 2002), and transhumanism (More & Vita-More, 2013; Bostrom, 2005).

But if a centric critique risks repeating the hegemonic position, in what ways can post-anthropocentrism then be used? Next, the aspect of flat ontology will be discussed as a way of thinking and working with post-anthropocentrism.

Flat ontology

The concept of *flat ontology* (DeLanda, 2002) is basically a synonym for post-anthropocentrism, but is useful since it provides a visual idea of post-anthropocentric ontology. Flatness means that no centric position has a hierarchical position or a predetermined starting point. Whereas post-anthropocentrism is a critique of anthropocentrism, flat ontology supplies a contrasting creative approach. In a flat ontology “The exterior and the interior, the subject(ive) and the object(ive), the individual and the social, and the symbolic are conceptualized as co-constitutive instead of pre-determined levels or layers” (Dolphijn & van der Tuin, 2012, p. 106). This idea is often framed as a response to Cartesian mind/body dualism and Newtonian causality, which are prominent in humanistic thinking (Dolphijn & van der Tuin, 2012; Coole & Frost, 2010a). When looking at the world as a flat ontology, no single aspect has primacy over another. Nature is not more original than culture, and the social aspect is not more important than the material aspect (Haraway, 1997).³⁸ Flat ontology proposes a non-representationalist view of research with a more open view on the object of study.

Other concepts and theories concerned with a non-hierarchical ontology similar to flat ontology are monism (Spinoza, 1996; Dolphijn & van der Tuin, 2012),

³⁸ Barad’s (2007) concept of the material-discursive has its equivalent in Haraway’s (1997) material-semiotic, Foucault’s (1972) discourse-object, and Latour’s (2005) socio-material.

immanence ontology (Deleuze & Guattari, 1994, 2004), generalized symmetry (Callon, 1986), mangle (Pickering, 1995), tiny ontology (Bogost, 2012), mesh (Morton, 2010), and actor network (Latour, 2005).

Materiality

As stated above, the poststructuralist and postmodern theories were developed as a critique of humanistic ideas and ideals. They represented important and engaging works that addressed the epistemological and linguistic aspects of reality. However, posthuman critics argue that language was granted too much power in these theories (Barad, 2003). In contrast to these, the material aspect is a strong focus of posthumanist theory, but is also considered in the development of the field of new materialist theory (Coole & Frost, 2010a; Dolphijn & van der Tuin, 2012). New materialism as a concept was first presented in the late 1990s by both DeLanda and Braidotti (Dolphijn & van der Tuin, 2012, p. 93). In the new millennium it has gained significant attention beyond these theorists, and has opened up possibilities for creating a new cultural theory.³⁹

The renewed focus on materiality is a consequence of the disruption of the human centrism and the questioning of dualisms such as matter/meaning, mind/body, subject/object, and nature/culture. In short, viewing the world as flat, also involves questioning the dualism of the active human subject and the passive material object. Matter, on the other hand, is viewed as vibrant (Bennett, 2010), or agential (Barad, 2007), in the same way humans are.

Further, a number of new technologies and research studies indicate that what we used to call passive matter also has agency, hence the separation between human/nonhuman qualities and capabilities is becoming blurred (Barad, 2003, 2007; Haraway, 1991, 1997; Coole & Frost, 2010a; Bogost, 2012; Bennett, 2010). The ideas proposed by new materialism are inspired for example by the natural sciences, which by tradition differ from Marxist materialism, for example. Accordingly, the new focus on the material deals not so much with the question of what a material is but the way in which materiality itself is handled. What is at stake is rather a “renewed materialism” (Coole & Frost, 2010b, p. 4).

³⁹ For some overviews, see *New Materialism: Interviews and Cartographies* (Dolphijn & van der Tuin, 2012), *New Materialisms. Ontology, Agency, and Politics* (Coole & Frost, 2010a), and *Material Feminisms* (Alaimo & Hekman, 2008).

The renewed focus on matter is central to posthuman educational research inspired by Deleuze, new materialism, and actor-network theory (cf. Lenz Taguchi, 2010; Hermansson, 2013; Hultman, 2011; Youngblood Jackson, 2013; Sørensen, 2009). Focusing on materiality is a strategy to decenter the human position and humanist notions of what it means to be human. Due to this focus on educational relations, it is relationality that primarily plays the role of the decentering agent, thus, materiality is not given the same attention in the theory of educational relationality as it has received in other posthuman educational theories (Sørensen, 2009; Hultman, 2011). However, rather than being a disregarded aspect, materiality is an entangled aspect of the post-anthropocentric analysis as will be obvious in Part II and III.

Intra-relationality

Education is a field with a history of seeing individuals as separate subjects and things as separate objects due to its humanist heritage, as argued in Chapter 2. Lenz Taguchi (2010) calls this an *intra-personal* approach, drawing on the ways in which psychological and cognitive theories have seen learning as a process occurring inside the student. As Lenz Taguchi observes (2010), social constructivist and constructivist theorists then placed more emphasis on the interaction and social environment, creating an *inter-personal* approach, which is equivalent to the intersubjective theories of educational relations studied in this thesis. She then proceeds to introduce a posthuman alternative, *intra-active pedagogy*, which has been an important inspiration for this thesis.

The main contribution of intersubjectivity is that it focuses on the becoming of the (human) subject through (human) interaction, instead of seeing becoming—and learning—as happening inside a separate subject. In other words, a shift from learning between subject and object (an active student and passive content, or an active teacher and a passive student), to learning between subject and subject (student and teacher) occurs. The subject exists before the relation with other subjects; hence, these theories still focus on the “constituents of the relationship” instead of on the “relationality of the relationship” (Biesta, 2004). How then can posthumanism contribute with a theory for the relationality? What is proposed in this theoretical framework is *intra-relationality*. In terms of etymology, intra-relationality is an entanglement of Biesta’s (2004) use of the term “relationality” and Barad’s intra-action. In terms of content, it is an

entanglement of ideas primarily from the works of Barad, Haraway, and Braidotti.

After discussing the connection of intra-relationality and post-anthropocentrism, three aspects of intra-relationality will be discussed: impermanence, subject/object, and ethico-onto-epistemology.

Post-anthropocentrism and intra-relationality

In contrast to a centric subject position⁴⁰, Braidotti (2013) proposes a view of 'becoming' that includes different post-anthropocentric aspects, primarily becoming-animal, becoming-earth, and becoming-machine.⁴¹ Through close investigations of these different "becomings" she argues that the more attention one lends the boundaries, the more blurred they appear. Indeed, the closer one studies a phenomenon, the clearer one sees the entanglements rather than the constituting entities. Braidotti (2013) proposes that the relation exists in the beginning, that is, before the atomized individual self and uses various concepts for this approach, for example "radical relationality" (p. 102) and "ontological relationality" (p. 100). This is what the notion of *intra-relationality* refers to. Braidotti's (2013) work is helpful to developing an understanding of the connection between post-anthropocentrism and intra-relationality, for example in pointing out the intra-relationality of materiality. However, even if the intra-relational aspect is present in her work, Braidotti's aim of creating a subject theory for the 21st century stands in the way of exploring it further. In order to fully explore this approach and understand its extensive consequences, I will turn to Haraway and Barad. First of all, the idea of impermanence will be discussed.

⁴⁰ The philosophers I draw on in this section often criticize aspects that the intersubjective theories also criticize, such as atomistic views of the subject. Thus, the primary concern in this section is to present how the framework of intra-relationality can contribute to the thesis. Therefore, it is of interest to study how these theorists arrived to their intra-relational positions. Hence, not all arguments can nor should be read as critiques of intersubjectivity. However, the intra-relational theoretical framework that it arrives at both can and should be read as a critique.

⁴¹ In analyses that argue against humanistic centric positions, Braidotti (2006, 2013) uses becoming-woman, becoming-other, and becoming-minoritarian in contrast to androcentrism, Eurocentrism, and general majority subject positions. The way Braidotti (2013) elaborates with these different becomings is borrowed from Deleuze and Guattari (1987). The notion of becoming will be further discussed in Chapter 5.

Impermanence

Intra-relationality takes as its starting point the concept of relationality rather than an entity, but relationality also means constant movement and suggests that stability only exists temporarily. In several posthumanist philosophies, the aspect of constant movement is central—intra-action or immanence for example—but in order to emphasize this aspect in relation to intra-relationality, I will next use another concept in order to clarify this aspect. Olson (2000) points out connections between the Eastern tradition of Zen thinking and postmodern philosophy. He discusses Deleuze's (1994) view on immanence, which is comparable to the concept of *impermanence* (Olson, 2000). For Olson (2000), impermanence is an essential aspect of Deleuze's philosophy, though they are not equal. While impermanence has connections to other aspects of Buddhist thinking such as holism, Deleuze's philosophy is more rhizomatic than holistic.

Impermanence is an English translation of what in the Buddhist tradition is called *anicca*. Its worldview starts from the insight that the world is constantly in motion. Olson (2000) argues that movement in the Western tradition is described as a temporary event between two stable positions. For example, when moving the coffee cup from the table to my mouth, the normal state of the cup is being still. Springgay (2015) draws on Manning's (2007) distinction between two kinds of movement where "relative movement" originates from distinct entities (a body, a room, a chair), and then the human body moves into the room; creating movement with the furniture, hence, only the human is an active agent. "Absolute movement", on the other hand, exists as ongoing movement of all things, "differentiating endlessly" (Springgay, 2015, p. 80). Hence, absolute movement is impermanent. Davies (2009) also draws on Deleuze's idea of constant differentiation in the development of the theory of "pedagogical encounters", contesting the way "difference" has been used in a categorizing manner. Springgay (2015) concludes: "Absolute movement, pure difference, enables research to become ontogenetic—emergent, vital, and mattering" (p. 82).

Movement as impermanence can be described as water continuously reshaping in its fluid state. The things that humans *do* experience as permanent are in fact not; as Todd (2015a) argues: "we, as individuals and cultures, create illusions of permanence to ward off facing the painful vicissitudes of our humanity" (p. 244). The idea of the self (ego/subject/individual) is one of the most convincing or deceiving illusions since it is connected to an embodied sense of being an

individual/self. Accordingly, while many critical feminist and race theorists criticize the Western hegemony of the white male subject, their reply is often an alternative, improved, version of the self, rather than a questioning of the very idea of the self, as Buddhism suggest (Todd, 2015a). However, feminist theorists, inspired by posthumanism and/or new materialism, are developing ideas beyond a new theory of subjectivity. This is one of the reasons why this thesis turns to posthuman feminists such as Barad and Haraway rather than other feminist theorists. For intra-relationality, impermanence is a reminder that the world is in constant movement, which emphasizes process and activity. Impermanence also has the function of decentering and disrupting stable views of the subject; thus the subject is viewed as nothing but an elusive result of ongoing intra-relationality/impermanence.

Subject, object, intra-

The notion of intra-relationality questions several dualisms, which are often taken for granted from a traditional science perspective. For example, an object is often considered a stable entity that a researcher, the human subject, can study and classify (Haraway, 1997). Subjectivity therefore suggests that the agential human subject is active and utilizes the passive object. However, as Barad (2007) demonstrates using Bohr's theories of quantum physics, no object can be studied as an independent entity; rather, the observer and the observed are entangled. The starting point of ontology is not an entity, but relationality.

Barad (2003, 2007) argues this view using the example of the wave-particle dualism paradox based on Bohr's physical-philosophical arguments. This experiment will be discussed more in detail in Chapter 5, but the following provides a brief introduction. In a particular experiment, electrons appeared as waves, but in a similar experiment, electrons appeared to be behaving like particles. More experiments did not lead to a single solution; rather, electrons were both/either waves and particles depending on the measurement. The conclusion is that an electron cannot be described as an entity based on the categories of particle and wave; rather, an electron expresses its qualities in relation to the apparatus. Here, the relation is between the scientific apparatus and the electrons. Barad's (2007) resolution of this dilemma is to shift from the ontology of the thing to the ontology of the phenomenon (or the relation). Intra-relationality means exactly this: relationality is the ontological starting point. Relationality does not constitute preexisting entities. Even if the concept of intra-relationality is constructed specifically for this work, it is clearly influenced by Barad's work. More specifically, Barad (2003, 2007) argues for

the concept of *intra-action*—in contrast to *interaction*—between entities. Thus, employing the intra- prefix, indicates the close relation of intra-relationality to Barad’s philosophy. One could say that the aim of intra-relationality is to emphasize the movement and the forces in motion, rather than pointing to a particular individual body (cf. Massumi, 2002).

To return to the wave/particle dualism paradox, the properties of the electrons were stated throughout the experiment. The result is that the relational intra-action of the electrons and the scientific apparatus can be categorized as either waves or particles. The process of deriving the part from the relation is called an *agential cut*, which is also the central idea of the title of this thesis. When talking about separate objects, they exist as a consequence of agential cuts. In this work, it is central to develop concepts that (i) cut the world differently than before in accordance with decentering principles, and (ii) remind us of the transience of the cut due to the impermanence of the relationality.

In order to distinguish this idea from the more established definition of entities, Barad (2007) calls the parts of an intra-action constructed through an agential cut *relata*.⁴² Even if Barad (2007) is the philosopher I primarily rely on in the description of intra-relationality, Haraway is also a major influence. Some aspects of Haraway’s philosophy clearly resemble Barad’s (both researchers recognize the other as having an influence on their respective works), but they use different concepts. Haraway (1988) argues that the border of an object is materialized through socio-material interaction, and that the object as such do not pre-exist the mapping out of these borders, thus “objects are boundary projects” (p. 595). Here, the emphasis lies in the construction of the objects, that is, in the performative⁴³ aspect of intra-relationality. When the objects are constructed through boundary projects, the universal essence of the object is

⁴² Latour (1993), following Serres (2007), uses the concept *quasi-objects* in actor-network theory.

⁴³ Performativity means that the world is created through actions or performances (Butler, 1990). The world does not exist as a pre-existent reality that agents act *in*; rather the world exists only *as* performances or activities. From a performative perspective, the construction of the world is ongoing, and the foundations are active performances instead of separated subjects. Barad (2003) uses the concept of posthumanist performativity. The posthuman aspect is that both human and nonhuman *relata* are intra-acting. Accordingly, intra-relationality means that the world appears as posthuman performances. It is not the single agent that is agential or has agency; agency only exists as relationality. The *relata* is always part of intra-actions and is activated differently, depending on its present relation.

nowhere to be found. Or according to Barad, the object does not have inherent essential qualities.

Being critical of universalist worldviews and promoting relational objectivity does not mean one is relativistic. As a critique against potentially relativistic approaches to philosophy and science, Haraway (1988, 1991, 1997) states that we need to be able to talk about the world. We need to be able to translate knowledge between contexts, however, without transferring fixed meanings and answers. Objectivity is not about essential truths, grand theories, or generalizable patterns that exist in line with universalist thought, but about attending to the always already occurring partial and specific embodiments. For Haraway (1997), objectivity is relational. Situated knowledges rebel against closure and fixation: “Situatedness does not mean parochialism or localism; but it does mean specificity” (Haraway, 1997, p. 199). The partial specificity is not limited to predefined classification categories. Instead, it is limited to local and situated knowledge. According to Barad, classifications are temporary, agential cuts in constant becoming with the world. Since agential realism does not use a predetermined cut between the observer and the observed, the agential cut becomes very important in order to situate knowledge and be able to talk about objectivity. Accordingly, Barad’s agential cuts and Haraway’s situated knowledges are closely related.

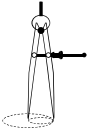
Ethico-onto-epistemology

Previously, I mentioned that Barad used a relational ontology instead of ontology of the entity. To return to Barad’s discussion of the wave/particle dualism paradox, this experiment cannot give an epistemological answer to the question of the inherent quality of electrons. An object is not first an ontological entity that is later described in different ways epistemologically. As we saw in the electron double-slit experiment, it was the measurement—the categorization into an epistemological system—that created the relata and gave it its ontological status. Therefore, Barad (2007) proposes that ontology and epistemology are entangled, and refers to this condition as *onto-epistemology*.

Further, Barad (2007) states that ethics cannot be separated from the onto-epistemological, hence, proposing the concept of *ethico-onto-epistemology*. The ethical aspect is not a consequence of the onto-epistemology, but already exists through the intra-action with ontology and epistemology. Barad (2007) argues that “Responsibility entails ongoing responsiveness to the entanglements” (p. 394). To be in relation is to be responsible for the intra-relatedness one is part

of. Davies (2009), informed by Deleuze, argues that “Ethics no longer rests so much on individualized decision-making subjects, but on the ongoing openness of each to the other, and the recognition each bestows on the other, moment-by-moment” (p. 28). Accordingly, ethics concerns potentialities and possibilities for what is coming, but also for what is present. In each “moment-by-moment”, ethics is an inherent aspect. The ethical aspect of intra-relationality is inherent in this thesis, but it will be specifically discussed as proximity in Chapter 5.

Intra-relationality means that the parts of the relationality are always already entangled. Further, the entanglement in the concept of ethico-onto-epistemology contributes with an understanding of matter and meaning as co-creating each other since. From a post-anthropocentric perspective it also means that meaning is not only created by humans, but is created through each engagement with the world. The fluidity of intra-relationality is not an essentialist worldview; instead, the world can be understood ethico-onto-epistemologically. The entanglement of matter and meaning is also central to developing the posthuman methodology of this thesis, which is dealt with in the next chapter.



CHAPTER 4. Creating Diffractive Patterns

Diffractive readings bring inventive provocations; they are good to think with.

—Karen Barad

In this chapter, I will discuss the manner in which the research was performed to achieve the aim and address the research questions of the thesis. In other words, the diffractive methodology of this thesis will be introduced and discussed.

The structure of this chapter is as follows. First, the choice of diffraction as a methodology for the thesis is contextualized through discussions on philosophy of education methodologies, as well as the methodologies of other posthuman educational research. After that, diffraction is introduced as a methodology developed for reading texts through each other. The role of the researcher from a posthuman perspective is discussed and the selection of texts is motivated. Next, I discuss the data that is used in conjunction with the theoretical discussion, namely memory stories and posthuman educational examples. Finally, I discuss how diffraction and this thesis view critique and creation.

Methodological beginnings

Philosophy of education methodologies

As this thesis is located in the philosophy of education, this field was a reasonable place to start looking for methodological approaches to use in this thesis. In the introduction to Biesta's article "Philosophy of Education for the Public Good: Five Challenges and an Agenda" (2012), he suggests, quoting Dewey, that philosophy will recover when it ceases to "be a device for dealing with the problems of the philosophers and becomes a method ... for dealing

with the problems of men” (as cited in Biesta, 2012, p. 581). The shift from a ‘philosophy of the philosopher’ to a ‘philosophy of the problems of men’ is a methodologically important shift for the philosophy of education.⁴⁴ However, since this thesis has a posthuman theoretical framework, it is obvious that the quote starts from an anthropocentric standpoint, claiming that philosophy is for dealing with the problems of “men”. Animals, nature, environment, and technology, among others, are viewed as challenges for men, and not for animals, environment, technology, or relationality itself to contend with. The title of the cited article also suggests that Biesta (2012) is concerned with the philosophy of education for the good of the public, that is, it is concerned primarily with the good of human beings and not all aspects of the world. Accordingly, using a post-anthropocentric approach, I further reconceptualize the shift from a “philosophy of the philosopher” to a “philosophy of problems”. This is a productive shift that can also be used in this thesis, but how should these problems be approached? Part of the answer lies what Todd does to find inspiration for the methodological approach in the theory.⁴⁵ Next I will give two examples of this.

First, inspired by Freud and Levinas, Todd (2003) develops the distinction between learning *about* and learning *from*. To learn *about* something or someone is to classify, categorize, and make understandable. On the other hand, to learn *from* someone or something is to make him/her/it part of one’s world, opening up to difference and personal changing. Todd (2003) states that psychoanalysis and Levinasian ethics are “incommensurable discourses” (p. 12), but argues that she would like to explore how to keep the tension between these two views without risking the erasure or collapse of their significant differences. Todd (2003) argues that she “is not trying to integrate these two views theoretically but to work within and through their very differences” (p. 13); hence she is

⁴⁴ In line with this, Sidorkin (1999) argues: “I am not really interested in finding what exactly Mikhail Bakhtin or Martin Buber meant and what their position was on this or that” (p. 8). Instead, he focuses on what the philosophies can *do* for resolving the research question. Hence, arguments are used and borrowed, and therefore taken outside the original meaning of the philosopher.

⁴⁵ In his major works, Biesta scarcely mentions his own methodological approach. However, his use of Arendt’s notion of “becoming” has both theoretical and methodological consequences on his work (Biesta, 2014). He sees his work as beginnings for others to continue working with beyond his control, thus, the beginnings needs to be risked.

herself learning *from* Levinas and psychoanalysis, not *about* them. Following this line of thought, Todd (2003) also argues that an ethical approach is implied rather than applied, which can also be seen as a methodological idea.

Secondly, in Todd's (2014) more recent work, Conroy's (2004) notion of "liminal imagination" is not only an orientation to teaching and education, it also "calls forth an *alternative mode of theorizing education*" (Todd, 2014, p. 236). Inspired by Conroy, Todd (2014) first provides a reading of a novel by Clarice Lispector to give an account of the embodied aspects of becoming, and then creates metaphors as a way of "*approximating* the aesthetic experience of existing and becoming, without assuming that our language can act as a substitute for the experience itself" (p. 243). She argues that metaphors such as touch and sensibility are not definitions of what embodied experience *is*, but rather offer an approach for noticing and appreciating these experiences. These are two examples of the way Todd maintains a firm connection between theory and methodology, an idea that I will return to later.

What aspects of the methodologies in the philosophy of education can be used for the methodology of this thesis? The pragmatic approach of focusing on the research problems instead of distinct philosophers can clearly be translated into the approach taken in this project—in fact, it already has been. For instance, the aim of the thesis and the theoretical framework don't focus on the work of any particular philosopher, but rather on particular ideas such as intersubjectivity, intra-relationality, and post-anthropocentrism.⁴⁶ Even if Barad is frequently mentioned, it is not her philosophy that is under investigation. However, her ideas lie close to the theoretical framework of the thesis and are therefore particularly helpful for resolving its problems.

What about the connection between theory and methodology, as exemplified by Todd's work? How can a methodology be constructed based on this thesis' theoretical framework of post-anthropocentrism and intra-relationality? Here, I find very little inspiration from the philosophy of education. The exception is Edwards (2012) who, informed by Barad (2007), proposes that posthuman

⁴⁶ However, sometimes it is of interest to stay with a philosopher a little longer. When developing the co-concept of "proximity" in Chapter 5, both Emmanuel Levinas' life and his philosophy are discussed in order to give the reader a deeper understanding of where his ethics originate, and to contextualize the transformation into a posthuman ethics.

research needs more creativity and experimentation resulting in new ideas. However, I believe Todd can provide an answer to these posthuman suggestions for finding new ideas. Here I will use a third example from Todd. After more than a decade Levinasian scholarship, Todd (2015b) argues that she wants to find something “new” in Levinas. Not to find “some secret treasure buried in the Levinasian archives” (p. 2), but rather through “displacing and repositioning his thought in such a way that new life is breathed into it” (p. 2). Todd (2015b) proposes a methodology that allows for various ideas to circulate and meet in new relationships in order to see what aspects to develop next. For instance, Todd (2015a) reads Levinas and Buddhism “across and through their differences” (p. 242) and finds in this meeting a new side of Levinas. In another article, she connects Levinas to theories of embodiment and materiality, which reveals yet other new sides (Todd, 2015b). To conclude, reading texts through various unexpected partners is another methodological idea I bring from the philosophy of education.

Returning to the theory-method connection, what does the theoretical framework ask from a methodology for this thesis? Post-anthropocentrism requires a methodology taking nonhuman aspects into consideration, but this also involves decentering the idea of what it means to be a human and, in this case, discovering what it means to be a researcher. Intra-relationality starts from the idea of an entanglement, which requires a methodology that views the researcher and field/data as ontologically related, not separate. Further, the methodology should not handle theories and philosophers as distinct entities with individual properties, but instead focus on movement and being attentive to what is affected.

When framing the methodological challenges for this thesis, I bring the insights from methodologies in philosophy of education. Firstly, a shift in focus from the “philosophy of problems” rather than the “philosophy of the philosopher” is considered an important shift. Further, I look for inspiration for my methodology in research in which theory, creation, and experimentation are important. Finally, I read texts through unexpected reading partners. In order to connect these challenges to posthuman ideas, I next turn to methodologies in posthuman educational research.

Methodology in posthumanist educational research

In the educational field, posthuman methodological approaches are mainly used in empirical research, and there has been a variety of interesting work done with

respect to developing new methodologies for this purpose.⁴⁷ A central thought is that “we must disrupt the idea that the human/self exists prior to the act of research” (Springgay, 2015), because this creates an illusion that the researcher is/can be separated from the research (Snaza & Weaver, 2015). Instead, the researcher and the research object are seen as entangled (or inseparable). Further, use of an entangled methodology requires not taking the human subject as the point of departure (Springgay, 2015). For instance, Juelskjær (2013) argues for “conducting science in/by/with this world” (p. 756). How then can these ideas be made into concrete methodological approaches?

I will now provide a few concrete examples, starting with methodological approaches to data collection. Bodén (2013) shifts from interviewing to ‘*intraviewing*’ when talking to teachers about digital systems used for the registration of student presence and absence, an approach which could include the computer software as an agent with a voice in the intraview. Johansson (2015) draws on Deleuze and Mazzei when transforming the traditional focus group interview into “confabulative conversations”, which focus on voices that collectively create ideas concerning the not-yet-seen. Sørensen (2009) turns to actor-network theory to study aspects of materiality, such as school furniture and online learning environments, based on the post-anthropocentric notion of symmetry. Rath (2015) analyzes stories about teachers’ knowledge with Barad’s concept “apparatus”, which takes into account the researcher’s role in the process of creating and collecting the stories. These four examples are only a selection of a wide range of interesting methodologies for collecting empirical data.⁴⁸ To conclude, the collection of data is made with regard to post-anthropocentrism in the sense that human and nonhuman agents are co-creating the data. Collecting data can also be intra-relational in that the researcher and the research object are not separated, but entangled. So far the data collection has been described, but what does a posthuman analysis look like?

⁴⁷ These efforts are made in various fields and contexts; however, one more general methodological positioning is the post-qualitative research (Lather & St. Pierre, 2013; Johansson, 2015; MacLure, 2013).

⁴⁸ See also Gunnarsson (2015), Lather (2013), Mazzei (2013, 2014), Pedersen (2013), MacLure (2013), Mazzei and McCoy (2010), Otterstad and Reinertsen (2015), and Youngblood Jackson (2013).

The main problem for posthuman empirical researchers is the qualitative tradition of coding data (St. Pierre, 2013). In contrast, Mazzei and Youngblood (2013) are “plugging” theories and empirical data into each other, hence exploring data and theory as intra-related not separated where theory is applied onto the data. Taylor and Blaise (2014) attend to the “more-than-rational” aspects of the analysis process, in order to decenter the idea of the autonomous child. Hultman and Lenz Taguchi (2010) use a relational materialist methodological approach to analyze how nonhuman things co-create the becoming of children. There are also several studies that use diffraction, though, they do not deal with philosophical texts but have adapted diffraction to the analysis of empirical data (Mazzei, 2013, 2014; Lenz Taguchi, 2012b; Juelskjær, 2013; Davies, 2014).

To conclude, posthuman educational research is analyzed using a flattening approach to the various parts of the research process, not giving any aspect priority. This decenters the idea of the researcher as the primary agent. Using these methodological approaches involves decentering the idea of the rational objective individual human researcher, thus opening up to affect, materiality, and relationality.

Introducing diffraction

The methodological insights from research in philosophy of education and posthuman educational research contribute with an overview of the various possibilities and challenges methodologies contain. Based on this contextualization, *diffraction* is hereby established as a methodology for the philosophy of education.

Motivating diffraction

Originally, diffraction⁴⁹ was developed to analyze texts (philosophical, theoretical, and sometimes literary), and has mainly been used among posthuman feminist and new materialist scholars. It was first introduced by

⁴⁹ Barad and Haraway use the concepts “diffraction” and “diffractive reading”. Lenz Taguchi (2012) add the concept of “diffractive analysis” when working with diffraction as a qualitative method. In this thesis, all three versions will be used synonymously.

Haraway (1992) but has been further developed by Barad (2007). A diffractive reading is the process of reading one text through another with a focus on the creative entanglements that could be used to solve the research problems at hand. There are several diffractive philosophical analyses to be inspired by, especially the work of van der Tuin (2011, 2014a, 2014b).⁵⁰

However, diffraction is not the only posthuman feminist methodology. There are several fruitful methodological approaches with different advantages, which will be briefly presented next. One example is ‘transposition’ which argues for transposing a concept between contexts in order to create movement (Braidotti, 2006). “Transversality” is a productive idea for overcoming dualist positions that is used both as a research methodological approach and a political dialogical method (Yuval-Davis, 1997, 2012; Dolphijn & van der Tuin, 2012; Guattari, 1984). Finally, methodologies inspired by Deleuze and Guattari have been widely established and elaborated, for example “line of flight”, “cartography”, or “plugging in” (Deleuze & Guattari, 1977, 2004). However, as the main theorists of the thesis are Barad and Haraway, I also turn to the diffractive methodology they propose. Diffraction is well adapted for dealing with the philosophical approach and research questions presented in this thesis. Besides, dealing with the same vocabulary and ideas in both theory and methodology hopefully facilitates reading this work. This also creates a direct link between this thesis’ theoretical framework and methodology, as was discussed in the introduction of this chapter. Further, diffraction is already established in other posthuman educational research, as stated above.

Reflection and diffraction

Diffraction is developed as a posthuman philosophical methodology in contrast to, for instance, reflexivity. Haraway (1997) argues that a reflection “only displaces the same elsewhere” (p. 16), like the mirror.⁵¹ The figure of reflexivity is mirroring essentially fixed positions, that is, hierarchically dominated ideas from majority identities. Accordingly, the metaphor of the mirror implies a

⁵⁰ See also: O’Rourke (2013), Badmington (2000), Sehgal (2014), Kaiser and Thiele (2014), and Ørsted Sauzet (2015).

⁵¹ The purpose for Haraway (1997) is not to dismiss research that uses a reflexive methodology but to target the metaphor, its connotations, and the underlying assumptions. See also Barad (2007, p. 86ff) for a more extensive discussion on reflexivity and optical metaphors.

belief that the research methodologies “provide an accurate image or representation that faithfully copies that which is being mirrored” (Barad, 2007, 86). The problem of representationalism is that it does not sufficiently acknowledge the impact the researcher has on the research object, but “holds the world at a distance” (Barad, 2007, p. 87).

In contrast to reflexivity, Barad points to diffraction as a metaphor for reading one text through another, allowing both “to engage aspects of each in *dynamic* relationality to the other” (Barad, 2007, p. 93). Diffraction is about creating new patterns or ideas as a result of entanglement and intra-actions. Whereas Haraway (1997) discusses diffraction as an optical metaphor compared to the optical metaphor of reflexivity, Barad (2007) also develops the quantum theoretical implications of diffraction. Just like the observable quality of an electron (wave/particle) can only be determined in relation with the apparatus, the same goes for texts and other data in diffractive analysis. The observer and the observed are inseparable; matter and meaning are entangled. However, the diffractive methodology should not be considered as an exact analogy to diffraction as an optical and physical phenomenon (Barad, 2007, p. 88). Rather, diffraction is a metaphor for thinking methodology in line with a posthuman understanding of entanglement.

Intra-relationality means that no single part of the intra-actions that constitute the research process is seen as an entity with individual inherent essential properties. In the knowledge production, the researcher and the research object are *relata* that only exists through their intra-action. As there is no “real” object existing before the intra-action, the diffractive analysis simultaneously creates knowledge *and* a reality. Barad (2007) argues that “Making knowledge is not simply about making facts but about making worlds” (p. 91). It is also about taking ethical responsibility for these facts and worlds, following the ethico-onto-epistemology as introduced in Chapter 3.

Lenz Taguchi (2012b) argues that a diffractive analysis “is not about uncovering the essence or truth of the data. This is an uncovering of *a* reality that already exists among the multiple realities being enacted in an event, but which has not been previously ‘disclosed’” (p. 275). A wide range of human and nonhuman intra-acting factors contribute to the “uncovering” of a reality through an agential cut. Knowledge in this view (in addition to being and ethics) cannot be created from an outside position looking at the world, but from being entangled with the world. This claim contradicts many of the central ideas in traditional philosophy of science and simultaneously it connects to other kind of science,

such as native science and indigenous worldviews (Cajete, 2000). But how does this change the role of the researcher if s/he is not seen as separate and objective? Next, the entanglement of the research process will be discussed.

The research process and the researcher

The research process involves a wide range of intra-acting relata and agency. Hence, the idea of an individual researcher actively working with passive research objects is questioned. Edwards (2012) argues, “the theory question in education is not only about which theories we mobilize, but also about which approach of theory mobilizes us” (p. 525). Research can be an experience that is not only cognitive but also embodied. Further, research is a relational project where the researcher relata is one of several parts. Each part plays its own role in the research. For instance, the role of theories is to mobilize or affect the researcher, Edwards (2012) claims.

In their research, Taylor and Blaise (2014) argue their process involves accessing the “more-than-rational apprehensions of the ways in which the world acts on us and affects us—beyond our endless meaning-making about it” (p. 385). Accordingly, more-than-rational aspects such as body, affect, impulse, materiality, sensations, and experience should also play a part in the research process.

To be inspired by posthumanism and to perform diffractive analyses is for a researcher to be aware of the responsibility that comes with being the human in a human research environment. Jensen (2005) asks, “How can the researcher-subject be a valid research tool in the research process, without succumbing to ‘researcher narcissism?’” (p. 235). Despite the fact that this thesis is an intricate entanglement with a large number of participants, it is after all my fingertips which have been in touch with the keyboard producing all these words. All ideas proposed in this work are produced in relation to texts, individuals, nature, animals, things, feelings, and the like. The diffractive analysis is transparent with respect to this relationality in that it sees the value in unexpected partners and acknowledging the role of the agential nonhumans in the research process. This means acknowledging that the researcher is not the only agent, and that all aspects of the research are co-constructing the agential process through the intra-actions. Mazzei (2013) argues that “a diffractive strategy takes into account that knowing is never done in isolation, but is always effected by different forces coming together” (p. 778). These forces are continuously intra-relational. When

analyzing and constructing new concepts, openness to what the theories and data *do* to the research process is emphasized.

To perform a diffractive analysis means to study how the texts engage intra-actively with each other, with the research questions, with the researcher, and with other unexpected aspects. When attuning to more-than-rational aspects in the research process, other kind of data can also appear. Next, the way texts and other data are selected from a post-anthropocentric perspective is discussed.

Texts, memory stories and examples

In this section, the means by which the selection of texts for analysis has been determined (Chapter 2, 5, 6, 7, and 8) will be motivated. After that, the inclusion of memory stories and examples as additional data will be discussed. But first a brief remark on the transdisciplinary approach of diffraction and this thesis.

One way to facilitate fruitful analyses is to use texts from various sources and disciplines. Transdisciplinarity is a self-evident approach in diffraction, emphasized by Barad (2007) and continually practiced by Haraway (1992, 1997, 2004). When paying close attention to details from a wide range of disciplines in a non-hierarchical way, new ideas or concepts can appear. This is beneficial in an analysis since diffractive patterns evolve “both between words and things ... and between theoretical schools” (van der Tuin, 2011, p. 27). As will be described next, the selection of texts in this thesis has also employed a transdisciplinary approach. For each diffractive analysis, contrasting concepts or perspectives are brought together.

The selection of texts

The selection of the texts for the analysis has been continuous, depending on which intra-actions could best contribute to a shift from intersubjectivity to posthumanism in educational relations. As stated above, Barad (2007) emphasizes that a researcher must pay close attention to the details of the phenomenon they study. My attention has been focused on different aspects depending on what problem I was working with at the time. For instance, after defining two central problems with intersubjective theories for educational relations (subject-centrism and anthropocentrism), the diffractive readings were directed towards targeting these two aspects more specifically. When working

with a particular co-concept, the analysis was concerned with the ideas that could contribute to its development. The main texts are read several times and, depending on the problem at the center of the analysis at the moment, different aspects of the texts appear relationally. Consequently, the data collection/selection was intra-acting with the diffractive analysis.

In this thesis, the main texts come from the following three areas: (i) intersubjective theories of educational relations, (ii) posthuman philosophy, and (iii) posthuman educational research. However, in order to develop some of the analyses properly, texts from additional areas are used. These are: (iv) humanist education, (v) Levinasian ethics, and (vi) research on the use of animals and technology in education.

Texts on intersubjective theories of educational relations (i) are central to the first two chapters of this thesis, as well as to the diffractive analysis in Part II. For a closer review of how the themes and material in Part II were selected and evolved, see the section on co-concepts later in this chapter.

Texts on posthuman philosophy (ii) are central in the analytical Chapters 5-8. As argued in Chapter 3, the focus on Barad and Haraway is a result of the feminist decentering approach I will be using in order to decenter the educational subjects towards relationality. These philosophers both deal with relational theories in an open and inclusive way that also contains a well-reasoned ethical stance.

Texts on posthuman educational research (iii) are usually not the main texts in an analysis, but appear in all analytical chapters to support various arguments. Primarily, texts that deal with feminist posthumanism are used. A few eminent actor-network theory texts also contribute to post-anthropocentric arguments.

Texts on humanist education (iv) are approached in Chapter 2 as it deals with the research question concerning humanist thought. Mainly primary sources⁵² were used, but also a selection of secondary sources. The selection of texts was made with regard to the mapping of the subject-centerism and anthropocentrism of humanist thought. Apart from that, the texts were selected

⁵² The primary sources are Kant, Wollstonecraft, Foucault, Spivak, Macaulay, Herder and Hume. See Chapter 2 for more information and references.

in order to cover the variety of humanist traditions that have had an impact on the foundations of education.⁵³

Texts on Levinasian ethics (v) are used to develop the co-concept proximity in Chapter 5. Philosopher Emmanuel Levinas is an important inspiration for several of the educational theorists I turn to (e.g. Todd, Biesta) and he appears in Barad and Haraway's texts. Levinas is included to strengthen the ethical aspect, which is of particular interest for relations and for this thesis' decentering and ethico-onto-epistemological approach.

Texts on posthuman educational examples (vi) are researched to determine the use of literacy dogs in education (Chapter 7), and the use of augmented reality technology in education (Chapter 8). Dogs and technology are two quite obvious posthuman examples as the entanglement with humans can be explained through the historical dog/human co-evolution and the huge impact technology has had on the everyday lives of humans. The more specific practices were determined based on a few criteria. First, the practices needed to be fairly limited so that the research material would be manageable for this limited example. Secondly, I preferred to use something odd, that is, I wanted to incorporate contemporary and innovative examples that would intrigue both the reader and me. Lastly, in order for the analysis to be contributing to the research field related to the respective example, two practices that had not yet undergone posthuman analysis were selected.⁵⁴

Apart from texts, this thesis also uses memory stories and examples as data. The use of memory stories will be discussed next.

Memory stories in a diffractive analysis

In an article on young girls' ill/well-being, Lenz Taguchi and Palmer (2014) use a multiplicity of data in order to trace the production of health.⁵⁵ Narrative data

⁵³ As the chapter contains the element of mapping out a background of the humanistic aspect of this thesis, the diffractive analysis here resembles a genealogical methodology. For an explicit genealogy of educational humanism, see Snaza (2015).

⁵⁴ The only exception to this criteria is Waltz (2006) whose posthuman analysis of nonhumans in education examine literacy dogs as one of several examples.

⁵⁵ Actually, in this article, the concept of diffraction is not used. Instead, the authors are using a Deleuzio-Guattarian cartography, which indeed lies close to diffraction. The authors have used a diffractive methodology elsewhere (Lenz Taguchi, 2012; Palmer, 2011).

about a girl taking the subway to school is placed next to an excerpt from an article in a daily newspaper and an interview with a psychotherapist. Lenz Taguchi and Palmer (2014) then reflect, “When reading these kinds of data into each other, a memory story, told by one of the researchers, emerged as follows” (p. 768). Subsequently, the reader is presented with the memory story. The memory appears in written form and is added to the data as a memory story, thus expanding the data. Finally, after the new data is included in the study, again the new complete set of data is treated non-hierarchically; hence, the memory story receives the same status as the other data.

From this, two conclusions can be drawn. First, the use of multiple data sources is done in a non-hierarchical way, or in other words, in a flattening manner (Hultman & Lenz Taguchi, 2010; St. Pierre, 2013). Secondly, the memory story influences the research process, and the researcher acknowledges this. Inspired by this study and these conclusions, the idea of the *memory story* will be used in this work. Memory work has previously been used in feminist studies and educational research, for example by Haug (1987), Davies et al. (2009), and Rath (2015). The memory work research is not specifically concerned with the stories of individuals. Rather, it is a collective work with a group or people whose memories are collected and/or examined collectively. The use of memory stories in this thesis is neither individual nor collective, but relational just like the diffractive readings.

When reading theories through one other, not only will creative new concepts appear but some memories⁵⁶ will also emerge. Some memories pass swiftly, whereas others leave traces. The memories involve me as a pupil, teacher education student, teacher, or doctoral student, as well my experiences in informal educational settings. However, the focus of the story is on not me as an individual, but on the relationality in the story and the relationality it creates in the diffractive reading. The memories that leave traces are written down as memory stories and made into data that becomes part of the overall data of the thesis. The memory stories that contribute to develop or clarify the analysis also appear in the text. The rest have an implicit influence on the understanding of certain perspectives or concepts. For instance, when working with

⁵⁶ Memory is here used in a broad sense for an aspect of the past re-activated intra-relationally. Memories involve episodic memories, sensations, material experiences and associations.

anthropocentrism, intentions and rationality, episodic memories involving living with my dog, Abdi, contributed to a great degree. The relation with Abdi also helped in developing the arguments on literacy dogs and companion species in Chapter 7.

Examples in a diffractive analysis

After diffracting theories and establishing co-concepts in Part II, the aim of Part III is to exemplify educational relationality with a few examples. The diffractive reading is different as it reads the example through the theory of educational relationality. The analyses also involve an additional reading through posthuman philosophy, more specifically through the work of Donna Haraway.

When exemplifying the theory, the diffractive reading is adding value, meaning, and depth to the concepts and ideas. Massumi (2002) uses the concept of “exemplary method” to discuss how he uses examples in a non-essentialist way based on singularity, detail, and connectivity. The purpose is not to explain using an example of exactly what the world (here, education) looks like, but to conceptualize an example differently. This way, the example is not a representation of something already existing, but an agential cut derived from the diffractive analysis. Whereas Part II was creating new concepts as a diffraction of intersubjective approaches to educational relations and posthumanism, Part III uses these concepts as a departure for further explorations.

In the concluding Chapter 9, educational relationality and its co-concepts are read through additional memory stories. This suggests some possibilities for using the concepts in new ways when approaching education relationally.

Performing the diffractive analysis

Reading texts through each other

A diffractive reading is the process of reading texts “through” each other, but what does that mean in practice? There are two answers to this question. First, the phrase “reading one text through another” is actually incomplete, because it lacks a discussion of what the reading is resulting in. In this thesis, the purpose is to develop a posthuman theory of educational relations, hence this is the “diffractive pattern” that the diffractive reading results in. Put differently: it is not the individual parts that are of interest, but the relational result. Inspired by

Biesta (2012), I argued above for an approach of a “philosophy of problems” rather than a “philosophy of the philosopher”. Accordingly, it is not a single philosopher/theory/concept that is of interest, but rather how the relationality of them can contribute to solving the philosophical problem. The interest of this thesis is the topic of educational relations and the reason I focus on intersubjectivity and posthumanism is because there is an interesting and productive tension between these positions that can generate new ideas. In order to emphasize the diffractive pattern and not the parts, the theory of educational relationality and co-concepts are established.

Secondly, from an intra-relational perspective, I argued that a relation is not the sum of its parts, but rather a relata derived from relationality. Similarly, the reading of texts is not the sum of these texts. When diffractively reading text X through text Y, neither X nor Y is seen as an entity but as relata. A text always comes into being through intra-actions with other texts and readers. Therefore, a diffractive analysis does not aim to find the essence of a text, its canonical interpretations, or the author’s exact intention. Barad (2007) points out that close attention to detail is needed in a diffractive reading, but the main function of the close reading is not to know every detail about a particular text or theory. Instead, close attention is paid to the intra-actions and to the possibilities for new ideas evolve. Accordingly, reading one text through another is involves looking for contrasts and connections, and is not about representation or classification.

Critique and creativity

A productive diffractive pattern can appear when texts intra-act “under the right experimental circumstances” (Barad, 2007, p. 83). Therefore, Barad describes quite carefully what appropriate experimental circumstances in a diffractive reading are like. In this section, they will be discussed as critique and creativity.

In diffractive methodology, the critical perspective is accompanied with a focus on the creation of concepts and development of new ideas (Braidotti, 2006; Deleuze & Guattari, 1994; Latour, 2004b). For instance, Barad proposes a focus on research as being “suggestive, creative and visionary” (as cited in Dolphijn & van der Tuin, 2012, p. 50). Even if critique is criticized by diffraction along with some other posthuman methodologies, this text will show the way in which a creative approach needs a critical approach when localizing problems that the creative approach can then continue to build from.

Barad argues that critique “is over-rated, over-emphasized, and over-utilized” (as cited in Dolphijn & van der Tuin, p. 49). In contrast, the diffractive reading is presented as a pragmatic and creative alternative. It uses research as a generative and productive means of creating new thought rather than for the purpose of dissecting the shortcomings of old ideas. When van der Tuin (2011) reads Bergson and Barad diffractively through each other, each philosopher’s work is strengthened as opposed to primarily serving as the subject of a critique. She mentions other readings of Bergson, which instead discard his ideas for their phallogocentric tendencies. The problem with the practice of critiquing is that it risks reproducing the master narrative of the idea which is being discussed. Further, it creates a situation in which potentially productive ideas are missed, and less focus is placed on developing the creative alternatives. Hence, following van der Tuin (who follows Barad), the purpose is to pay attention to the fine details of the arguments and to find productive connections and possibilities for development. Here respectful engagements are needed, “not coarsegrained portrayals that make caricatures of another discipline from some position outside it” (Barad, 2007, p. 93). When dealing with intersubjective or humanistic theories, I tried to contextualize them in order to motivate the contribution they made and the ways in which they could be further developed (see for example Chapter 2).

Biesta (2015) states that each theory is developed to solve its own particular research problem, hence, to criticize it for not answering the problems posed in *this* research is neither fair nor productive. When localizing the two problems with intersubjective theories, the main intention is not to perform a critique based on the problems in order to dismiss them. Instead, the problems are used as starting points for further creative theoretical development.

In Spindler’s (2013) work on Deleuze, she states that

it is not about a historical, or descriptive reading, but about a philosophical reading: something in the problem, something in the central concepts must change, be re-activated, but through that also transformed, to be recasted to answer to the problems that *I* as a *reader of* and a *writer of* the other philosopher necessarily has; problems which in turn have to do with a different context and another time than the one before. (Spindler, 2013, p. 12, my translation)

Here, Spindler emphasizes that the transformation of philosophy is guided by the specific research problem. Deleuze and Guattari (1994) write: “What is the best way to follow the great philosophers? Is it to repeat what they said or *to do*

what they did, that is, create concepts for problems that necessarily change?” (p. 28). The creation of new concepts is central in Deleuze and Guattari’s (1994) work. Creating new concepts means focusing on one’s philosophical problem, consequently disrupting the ideas of other philosophers, and being forever disloyal to one’s favorite philosophers (Deleuze & Guattari, 1994).

Since the aim of the thesis is to develop a new theory, it is crucial to emphasize the creation and not to overemphasize the critique. For instance, in Chapter 5 the philosophy of Levinas is used. Contemporary work on Levinas often criticizes him for being andro-, Euro-, Judao-, or anthropocentric (Chanter, 2001; Katz, 2003; Calarco, 2008). However, both Barad (2007, Chapter 8) and Haraway (2008) have read Levinas’ philosophy diffractively in order to develop their respective ideas. Barad (2007), for instance, is only pointing to some problematic aspects in passing and concentrates instead on the creative intra-actions of Levinas and quantum physics. In accordance, in Chapter 5 Levinas’ anthropocentric position will be briefly discussed before performing a diffractive reading of his concept “proximity” transforming it into a co-concept for educational relationality.

To conclude, in order to keep clear sight on the new without repeating the existing ideas, it is a good idea to be attentive to contrasting diffractive patterns and explore what happens when the ideas meet. This is facilitated by localizing a problem through a critical reading, approaching this problem, and trying out the creative potentiality of the concepts.

Creating co-concepts

The co-concepts are constructed to support the theory of educational relationality. They are based in a critique of particular intersubjective educational concepts before being read through posthuman philosophy. The diffractive reading results in the creation of the transformed co-concept that constitutes the content of the theory of educational relationality. The co-concept takes its departure in an intersubjective concept, or an intersubjective use of a more general concept, because the positioning in the field educational relations is of great importance. Hence, an intersubjective concept of educational relations is transformed into a posthuman co-concept of educational relations. Similarly, the posthuman philosophy is transformed into the field of educational relations. Even if the two theoretical areas are changing in different ways, they are still both transformed.

An example may be productive in order to get a sense of the process. When dealing with “becoming” in Chapter 5, the mapping of the concept in the educational field is far from exhaustive. The various use of becoming in education is voluminous, and the aim is not to cover the field. Rather, what I am looking for is a version of becoming that can be used as an intersubjective starting point for the transformation. Instead of critically studying concepts as entities that are possible to define and classify, the focus of this thesis is on their potential to intra-act in the diffractive analysis. That said, this potential to intra-act is also connected to how well argued and developed the concept is. Biesta (2006, 2010, 2014) is the educational theorist I use the most because I find his work—for instance his work on “becoming”—elaborate, pragmatic, and thorough. Another reason is that Biesta (2006) is an outspoken critic of humanistic thought, which is also beneficial for this thesis. After choosing a starting point in Biesta’s “becoming”, I returned to the work of Braidotti (2006, 2013) for her Deleuzian take on becoming and for a few months her ‘becoming-posthuman’ was adapted as the co-concept. During the continuous work with the analysis in Part II, I was increasingly troubled by the fact that no concept could express the idea that everything exists in constant movement. The idea appears as a part of intra-relationality or Deleuze’s immanence, but those concepts also mean other things. I needed a new concept that meant only this and for a while I collected possible concepts. The Buddhist concept of impermanence had until this point only been a footnote in the theory chapter. Two findings made me confident enough to decide on this concept: Todd’s (2015a) article on Levinas and Buddhism, as well as Olson’s (2000) discussion on Deleuze and impermanence. As a direct result of integrating impermanence as a concept, it became clear that Braidotti’s (2013) becoming-posthuman did not sufficiently take impermanence into account in that concept. Finally, the analysis transformed Biesta’s becoming to becoming-impermanence, which was streamlined to simply “impermanence”.

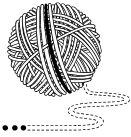
PART II: Diffractions

Introduction

In Chapter 1 I argued that the research on educational relations has moved from a view of the teacher and the student as a subject/object dialectic to an intersubjective view. Regarding the teacher and student relationship as intersubjective still keeps the theories within an anthropocentric paradigm. In addition, the relationship is subject-centered, with the reservation that the subjects are developed through interaction with other subjects. In this thesis, the very relationality of an educational relation is discussed with the aim of developing a new theory of educational relationality.

The disposition of Part II is based on the following two themes: relationality and education. Chapter 5 deals with the question of relationality: what is it, compared to the notion teacher-student relationships? In this chapter the theory of educational relationality is developed both with a departure from intersubjective theories of educational relations, but also as a contrast to these theories. Three notions from intersubjective theories of educational relations will be read diffractively through posthumanist philosophy and posthuman educational research. The analysis will result in three co-concepts that emphasize different aspects of the theory educational relationality, namely *impermanence*, *uniqueness-as-relationality*, and *proximity*.

Chapter 6 investigates the question of what education represents in terms of educational relationality. One central project is to work past Biesta's idea of locating education as a gap between the teacher and the student. Instead, educational relationality suggests an impermanent location in intra-relational educational activities, introducing the co-concept *edu-activity*. Further, a posthuman approach to learning is discussed, introducing the co-concept *intelligibility*.



CHAPTER 5. Relationality

It is also important to note that we deliberately adopt the notion of relationality, rather than relationships.

—Africa Taylor and Miriam Giugni

Introduction

In this chapter, the focus lies with the aspect of relationality in educational relationality. Through the development of important co-concepts, a shift from relation (or relationship) to relationality will be carried out. In the analysis, some contemporary intersubjective theories of educational relations (primarily: becoming, uniqueness-as-irreplacability, and separateness) will be read diffractively through posthuman philosophy. The diffractive analysis results in three co-concepts that constitute what is intended by the theory of educational relationality. The three concepts are *impermanence*, *uniqueness-as-relationality*, and *proximity*.

First, I turn to Barad for a brief introduction to some foundational ideas relating to educational relationality and educational relata. After that, I discuss the concept of *becoming* which has a prominent role in educational theory and is a main idea for intersubjective theories of educational relations. Leaving any humanistic view of the human being as a being, and instead seeing it as subjectivity in a process of becoming is considered relational. However, the problem with the intersubjective becoming is that it is both anthropocentric and subject-centric. As a contrast to the theory educational relationality, I draw on Braidotti, Deleuze, and Barad, which results in the co-concept of impermanence. Secondly, I analyze the idea of uniqueness in education, with a focus on Biesta's discussion of uniqueness-as-irreplacability. I conclude that

from an intra-relational approach, being replaced is part of impermanence. It is not that a subject who will be replaced, instead, the world is in a state of constant replacement or change. From this perspective, uniqueness is never guaranteed, yet is always appearing through relationality, hence the creation of the co-concept uniqueness-as-relationality. Finally, I am immersed in a critique of human beings as foundationally separate, and that the relation is a space for people to meet, and for learning to happen. Turning to Barad and Levinas, I propose an ethical and sensible approach to relationality introducing proximity as a co-concept. Building on Barad's ethico-onto-epistemology, I add Levinas' ethical philosophy in order not to oversee the ethical aspects that are inherent in relationality. Proximity adds notions of closeness, sensibility and materiality to the theory of educational relationality.

From the three co-concepts, the reader hopefully will get a closer sense of what relationality means for educational relationality.

Educational relationality and relata

This section will start with an example borrowed from psychologist Jerome Bruner (1996):

The topic was "atomicity," the smallest of which other things might be made, which is as old a topic you can get. The discussion grew lively when it reached the point where it got to "cutting up" matter into smaller and smaller pieces until, as one of the children put it, "they've got to be invisible." "Why invisible?" somebody asked. "Because the air is made of atoms"—which produced a general pause. A kid took advantage of the pause to ask, "Does everything have to be made of the same atoms?" "Well, so how could the same atoms make stones and water both?" "Let's have different kinds of atoms then—hard ones and soft ones and wet ones." "No, that's crazy: let's have them all the same, and they can make up into different shapes like Lego or something." (p. 125–126)

Bruner (1996) argues that this is a good example of a scientific process in the classroom since the children are discussing in order to figure out a model of nature, instead of finding readymade knowledge out there. Bruner explains without further ado that the topic of the class was "atomicity". This may be as old a topic can get, but not without controversies. The question is whether there even is such a thing as the smallest entity? The term atom means literally indivisible, and atoms were earlier believed to be the smallest building blocks

from which everything else was constructed. Contemporary physics is revealing a much more complex story of quarks, uncertainty principles, and the wave/particle paradox. The details are not the issue here; rather, the purpose is to elaborate on the idea that the atom—or any indivisible particle—was not only considered to be the smallest part that the world consisted of, but also that this idea has contributed to the way we perceive the world. From an atomistic worldview, reality consists of entities, which are separate from one another. Using an atomistic approach to human behavior creates an understanding of individuals who are connected to each other only through social interaction. What other way is there?

Bruner's (1996) cognitive psychological ideas and research builds on categorizations. He argues that we perceive the world using categories, and learn using existing categories and creating new ones. The atomistic worldview goes hand in hand with categories. However, Bruner's work will not be further explored here. The categorization process is not something that one just can disregard, as it is an embedded part of a person's cognitive system. The desire to categorize is a desire for order and systematization, and a willingness to simplify. It is also the cognitive ability that made human beings able to understand complex ideas. In addition, it is a desire to see all things as distinct entities, since that will make the categorization process easier. From a philosophical point of view—and from many other points of view as well—the categories are constantly being disintegrated. Plenty of theorists and philosophers have tried to take this disintegration seriously and create alternative non-atomistic worldviews, resulting in a wide range of ideas. In educational theory, intersubjective theories have criticized atomistic or individualistic approaches and instead developed theories for educational relations. This involves discussing the ethically problematic aspects of using categories in humanistic approaches to education (Biesta, 2006; Todd, 2003). However, the intersubjective theories have, despite their critique of individualism, used as their starting point the individual subject, rather than the relationality of the relationship. Intersubjectivity is about taking entity as a starting point, and acknowledging that it changes through interaction and emerges from the relational process as a new entity. The concepts of atomism and intersubjectivity function as contrasts to the intra-relational approach that will be put to work next.

Quantum entanglements

Barad (2007) argues that when studying the quantum level of the material existence—atoms, electrons and quarks—that nothing is as organized, causal or

linear as one might think. The atomistic worldview can be considered a construction of human thought and of our eagerness to put life and categories in order. Barad (2003) calls this process ‘thingification’,⁵⁷ which she defines as “the turning of relations into ‘things’, ‘entities’, ‘relata’” (p. 812). It must be emphasized that Barad is not using quantum physics as scientific evidence for the construction of the rest of the world. On the contrary, she argues vividly against reductionist or generalizable principles (Barad, 2007). However, the structure of ideas often transposes from one aspect to another. For example, Barad (2003) argues that “Liberal social theories and scientific theories alike owe much to the idea that the world is composed of individuals with separately attributable properties” (p. 813). She argues that there is a connection between these ideas and a mechanical, causal, atomistic worldview. Dear (2006) remarks that Newton’s universe “which consisted of lifeless matter bouncing around according to mechanical laws, was clearly exploited for human ends: it lent itself to instrumentality” (p. 10). Thus, a common tendency for humans is to regard life as atomistic; humans are portrayed as separate subjects that interact with other human subjects. Many people in the eighteenth century were influenced by the Newtonian worldview and “became accustomed to the idea of action at a distance” (Dear, 2006, p. 13). This idea contrasts the posthuman understanding of entanglement and intra-relationality, which also I will also return to in the section on proximity in Chapter 5.

Thingification is based on the mechanical rules which describe the causal relations of bodies such as cue balls, and is used in industries and technology. These rules are connected to a positivist or humanistic paradigm where causality and outcome are controllable and predictable. In theories of educational relations, the atomistic and mechanical approaches are contested on the basis of the argument that learning and education are areas of incalculable complexity. Instead, the plurality of possibilities and the uncertainty of learning and education are emphasized (Biesta, 2006, 2014). It is argued that relationality is an ontological question and a philosophical starting point rather than a goal or a means for learning (Davies, 2009; Lenz Taguchi, 2010). To focus on quantum physics generates an alternative worldview to the governing atomistic, outcome-based discourse on education, and provides a different way of approaching relationality.

⁵⁷ Synonyms to this concept is particularism or metaphysical individualism (Barad, 2007, p. 333).

The main thought I will put forth in this chapter is that educational relationality is not a theory of educational subjects, but strives to develop ideas about relationality. For Barad (2007), the focus on relationality instead of entities is not a matter of preference but something called upon by her background in quantum physics and her interpretation of Niels Bohr's physics-philosophy. Bear with me now, because this chapter will actually start with a physics experiment, explaining why entities are not the foundation of Barad's philosophy, but an effect of the intra-actions of the experiment. The electron double-slit experiment⁵⁸ is seen as a wave-particle duality paradox since it proves that an electron can exhibit both wave and particle behaviors, depending on the setup of the experiment. The description is quite brief and has been slightly simplified, though hopefully without reducing the complexity of its counter-intuitive results.⁵⁹

In the experiment electrons are sent from an electron source towards a surface with a slit in it. The electrons that continue through the slit then hit a detection screen and leave traces. As expected, the pattern on the detection screen will resemble the shape of the single slit they all passed through; we can call this a particle pattern. The first conclusion is that electrons are acting like particles. What would happen if there were double slits on the surface? One could assume that in the double-slit experiment the electrons would produce a particle pattern that resembles double slits but this is not the case. What appears on the detection screen is instead a so-called interference pattern. What then is an interference pattern? If you drop two stones into water, each stone will create an expanding circular pattern. When the circles from the two stones meet the collision of the waves creates an interference pattern. A similar pattern appears when a wave is passing through two slits, because the waves meet on the other side. This is the same pattern as the electrons made, which leads us to conclusion number two: the electrons are behaving like waves, thus the wave-particle duality paradox arises. In addition, sending the electrons one at a time

⁵⁸ The double-slit experiment setup can also be used with other entities, for example photons. In this work it is exclusively the reference to the electron double-slit experiment that is intended, even when only the "double-slit experiment" or "experiment" to refer to it.

⁵⁹ For a more exhaustive explanation of the double-slit experiment, see Chapter 3 in Barad (2007). For a quick overview of the experiment, there are several videos on YouTube explaining it in a pedagogical way.

can be expected to provide a particle pattern since they can only pass through one slit at the time. But surprisingly enough, after a while, an interference pattern appears. Accordingly, in the quantum world individual electrons are somehow still connected or are in some other way contributing to the appearance of the waves.

Is the conclusion then that electrons are waves? Not quite. The experiment was developed, and a detector was placed at one of the slits in order to register data to determine whether the electron passed through this slit or not. When the experiment ran this time, the detector registered that 50% of the electrons passed through this slit. What was surprising though, was that a particle pattern resembling the two slits appeared. Perhaps the detector affected the particles? The experiment was run again, this time with the detector still on, but with one small difference: it was not registering any data. To be clear, the experimental equipment was now detecting and affecting the electrons in the same way as before, but not transmitting the results to the researchers. This time the wave-like interference pattern was back. So is the electron a wave or a particle? Well, whether the wave or the particle pattern will appear depends on the measurement. If the measurement is done at the detection screen, the electrons are behaving like waves, but if the researcher is checking at one of the two slits, the electrons are behaving like particles. Hence, an electron is not an entity consisting of the scientifically agreed upon categorizations of wave or particle—its performance is co-constituted with the experiment. On the quantum level, electrons are entangled with the experiment, thus, relation is the ontological starting point and the entity/relata of the electron is secondary.

Following Bohr, Barad (2010) argues that “entities are not inherently ‘wave’ or ‘particle’, and that it is possible to produce wave and particle phenomena/behaviors/performances when the entity in question ‘intra-acts’ with the appropriate apparatus” (p. 255). Barad argues that science cannot categorize the essential status of an entity. Instead, the only thing that can be measured is only the way the electrons relate to the research apparatus. The behavior of the electron as a phenomenon does not exist independent of the research apparatus; rather the phenomenon is an observer-electron-apparatus entanglement. An apparatus is not only a piece of scientific equipment such as an electron gun, but can also be thought of as a more general tool, such as a concept, an interview, a theory, or a pencil. When considering the human as an apparatus one also needs to consider the limitations of a human to construct categories outside her/his own senses, cognition, and experience. Why is an

electron even studied using a hypothesis based on the categories wave and/or particle? Consider the psychological argument of Bohm (as cited in Dear, 2006), “we can only conceive what we meet in everyday experience” (p. 172). A particle and a wave are as visual figures easily accessible for the human senses, thus they can be understood or accessed in an anthropocentric way. How would the electron be described if the categorizations were not made up by humans? From a post-anthropocentric perspective, one can speculate as to how electrons would be described based on the experience and perception of a bat or a dog—that is, based on chiropteracentrism or canine-centrism.

From the electron double-slit experiment and observation of other quantum phenomena, Barad (2007) draws conclusions on the entanglement not only of observer and apparatus, but also of her ethico-onto-epistemological approach. Phenomena are not separate from the observer; the creation of knowledge is equally a creation of this particular reality.

Educational relationality and relata

What then are the implications of this physics lesson for educational relationality? To begin, it provides a deeper understanding into the foundation of intra-actions/relationality and also the status of relata. What normally are considered the protagonists of educational relations—student, teacher, content—are not distinct entities, but relata created as temporary agential cuts. To claim that a relata—for example a student—does not have inherent properties, means to disrupt several ideas ingrained in educational thought. As stated in Chapter 1, a wide range of educational theories and practices take an educational subject as their point of departure. Instead, of particular interest is the idea that educational relationality consists of intra-actions from which educational relata can be derived. The educational relata can be pretty much anything, as long as there is some kind of learning⁶⁰ and/or connection to an educational setting.

Intra-relationality is not a concept synonymous for relation, but constructed to function as a decentering concept targeting what appear to be stable entities or

⁶⁰ The concept of learning is a constant problem for posthuman educationalists as it starts from the position of the single learning human individual. For further discussion on learning, see Chapter 6 where “learning” will be transformed into the post-anthropocentric and intra-relational co-concept “intelligibility”.

positions. Neither relationality nor relata are concepts that refer to distinct bodies or things; they symbolize a foundational entanglement and the temporary parts of the entanglement in question. The two educational roles, teacher and student, are two subject positions that are unusually fixed. When discussed as a part of educational relationality “teacher” is usually referred to as an educational relata, but this is only partly correct. An educational relata is not someone who enters an educational relation as an entity with an already programmed set of inherent qualities and intentions. A relata is a part of relationality, but it is not necessarily connected to a distinct body or an existing role, such as teacher/student. An educational relata is not necessarily the entity normally called teacher, student, curriculum, or book. A relata is never an entity or an entire anything; it is not an entire student, an entire teacher, nor an entire book that is activated in relationality. Plenty of aspects of the teacher subject are never activated in relationality, hence, the importance of focusing the relational view on the aspects that actually are activated. Instead, relata can be a particular aspect of what we usually call teacher, book, and so on.

Educational relationality uses a flattening approach to relations and accepts more than two parts in the relation. Due to the consideration of educational relata instead of educational roles/subjects, educational relationality escapes the traditional roles of what it means to be a teacher or a student. Instead, a perspective in which the focus is primarily on the relationality and secondarily on its relata is proposed. Educational relata will be used continually in the analyses, but it is not proposed as a co-concept for this thesis.

Becoming and impermanence

Instead of seeing individuals as atomistic bounded beings with a focus on *being*, the intersubjective perspective focuses on the subject as *becoming*. In what way can becoming be read in a post-anthropocentric and intra-relational way for the theory of educational relationality? This question will be explored in the present section.

Becoming in educational theory

Biesta (2006) argues that, after Kant and the Enlightenment humanism, it was possible to distinguish between the becoming of the subject and the becoming of the society, where the student was to appear both as a part of society and also as an individual in her/his own right. However, the ways of appearing as an

individual were based on ideas about what it meant to be a human being, thus emphasizing self-education, linear development, and individualism. The becoming of the self was an individual process, Biesta (2006) argues. The problem with this individualistic view on becoming is that it has a specific idea of what an individual should bring to the society, and it is this idea he is critical of. Instead, Biesta (2006), following Arendt (1958), sees becoming as an intersubjective process where a subject is becoming through interaction with other subjects. According to Biesta (2010) Arendt claims that a subject is “one who began an action and the one who suffers from and is subjected to its consequences” (p. 83). To be someone who is subjected to other people’s influence is to be someone who is in constant change; s/he is not a stable being. In other words, becoming is an intersubjective process. Biesta prefers the concepts of subjectivity and subjectification before individuality and individualization since they add the aspect of intersubjective becoming in contrast to an intrapersonal, individualistic approach. Allowing students to come into the world as unique beings is not to desist from judging and letting a student become without care or interference. Rather, Biesta (2010) argues “this judgement should occur *after* the event of coming into presence, not before (p. 81). Again, Biesta here critiques the humanistic Enlightenment idea of having an already fixed version of who the student should become through education.

Biesta’s use of “becoming” is interesting, well argued, and productive, and has potential for use as departure point for further development. At the same time, for educational relationality, Biesta’s anthropocentrism and subject-centrism needs to be revisited. For Arendt, who produced her work in the aftermath of the Second World War, the importance each human being was the main concern—a concern she shares with Levinas, which will be further explored later in this chapter. For example, Arendt writes “With word and deed we insert ourselves into the human world” (as cited in Biesta, 2012, p. 687). To become is to become a unique human individual, and I will shortly develop a post-anthropocentric understanding of the becoming.

Biesta’s critique of the Enlightenment humanist view on the student is related to the humanist view on the becoming of the child. In most humanist thought the child is viewed as an unfinished adult, that is, someone who has not yet fulfilled the norm of being a human being. Grounded in a Reggio Emilia philosophy, Lenz Taguchi (2010) criticizes the traditions within early childhood education that focus on measuring children’s abilities in order to compare them to a specific norm of expected development. She argues that even if there are data on

children's expected development, one neither can nor should prescribe the potentiality of a child. Instead, children "co-exist and are in a state of becoming-with each other" (Lenz Taguchi, 2010, p. 87).

Lenz Taguchi (2010) uses Deleuze and Guattari's concept of becoming-minoritarian in order for the adults and the teachers to open up for transformation. Taking a minoritarian position (here: the child), includes a critique against majority views (here: the adult) of the world and encourages creation of alternative ways of becoming. This way, the figure of the child could occupy a constructive minoritarian position demonstrating the problem with assuming a fixed version of the human, instead of focusing on what each person (child) could become. The open-ended aim of becoming can also be found in Biesta (2012); however, what differs is the way Lenz Taguchi's (2010) minoritarian approach is built on critical analyses of the structures of society. She is using becoming in order to decenter a centric hegemonic position. Using becoming in the way Lenz Taguchi does is a feminist reading of the concept and an exception in the literature on education. Though, given this thesis' critique of both anthropocentrism and subject-centrism in intersubjective educational relations, using becoming as a decentering approach is an obvious connection. Therefore, in order to contrast Biesta's intersubjective becoming of the subject, a feminist posthuman relational decentering version of the concept of becoming will be developed next.

Becoming as decentering

Braidotti (2006, 2013) has done extensive work in order to show how the concept of becoming can be used as a feminist and posthuman concept. She is bridging continental philosophy and critical theory (feminist, post-colonial, queer, disability, and race studies) by constructing a subject theory for the 21st century. Becoming is a central theme that depicts the ever-changing dynamic of the nomadic subjects (Braidotti, 1994).

Braidotti's main inspiration is Deleuze and Guattari (1986, 1987), who use the concept of becoming-minor in order to construct a more general philosophy for centric thinking, and to analyze how to subvert the voice of the Majority. Becoming-minor, or becoming-minoritarian, is an attempt to create possibilities for such subversion. To actually overcome a centrism demands work and strategies. Braidotti (2013) emphasizes the potentiality of a better world in her version of becoming. The concept of becoming is used together with different minoritarian aspects throughout Braidotti's work. To begin, becoming-woman

is based on feminist theories, and becoming-other on postcolonial and critical race theories (Braidotti, 2006). Further, Braidotti (2013) adds a post-anthropocentric touch to becoming since she argues that the subject is also becoming through animals, nature, and technology—interactions that dissolve the borders of the human. In addition, the loosening of the borders involves an intra-relational approach where the entities are less important and the relational aspects are more important. Here, concepts like becoming-animal and becoming-world (Braidotti, 2006), as well as becoming-machine and becoming-posthuman (Braidotti, 2013) play a role. Becoming-world is not highlighting a particular minoritarian position, but decenters the human and places it as a part of the sustainable ecological network of the world. What returns in all these versions of becoming is a decentering process.⁶¹ Through positioning a minoritarian position as becoming, it is possible to resist reproducing majority positions thus creating possibilities for feminist decentering processes of change. Accordingly, becoming is not a description of an existing process, but a vision, and a decentering of positions that are taken for granted. As will become obvious in the following discussion, Braidotti's ideas also carry a centric positioning, namely the subject position.

According to Braidotti (2006), becoming “has to do with emptying out the self, opening it out to possible encounters with the ‘outside’... one’s capacity to feel, sense, process and sustain the impact with the complex materiality of the outside” (p. 145). Note that the outside is written ‘outside’, which implies the blurry lines between self and other—between the I and the world. If a subject experiences an “outside”, this “outside” is a construct, but a performatively constructed one, not an essentially fixed one. Braidotti’s project is explicitly to develop a posthuman subject theory. For Braidotti, subjectivity means the temporary nomadic process of border making between inside and outside, and the starting point is the subject. This does not correspond to the intra-relationality of this thesis’ theoretical framework. As argued in Chapter 4, the intra-relational aspect is not fully executed in Braidotti; it is not pushed enough

⁶¹ There is another kind of becoming that Braidotti returns to continually, namely becoming-imperceptible, which in some way resembles becoming-world as it does not take a specific minority category into account. Rather, those two are “more radical breaks with established patterns of thought (naturalization) and introduce a radically imminent planetary dimension” (Braidotti, 2006, p. 168). Becoming-imperceptible is to take the unknown, the indiscernible or unnoticeable into account.

to its radical consequences. In order to emphasize the intra-relational aspect of this thesis' version of becoming, I will continue this diffractive analysis with Barad (2007) who contrasts Braidotti stating: "We are *of* the world—there is no inside, no outside" (p. 396).

The main difference with an intra-relational becoming is that the relationality is the foundation to becoming, not to the subject. The subject is merely a temporary construct of the relational flows of becoming. For Biesta (and to some extent, for Braidotti), the subject exists before the process of becoming, but is also becoming through this process. Barad (2007) is not taking a subject position as a starting point for becoming, but claims that the material in a post-anthropocentric way is "an agential force in the world's differential becoming" (p. 180). Hence, the world, not the subject, is the starting point of becoming. From an anthropocentric and subject-centric position the focus on human subjectivity is the majority position. Accordingly, it is now the human subject that needs to be decentered. Decentering the human subject also disrupts the dualism of the active subject and passive object. Now, anything is acting on any other thing. This goes hand in hand with the idea that no single thing exists independent of its intra-actions with other things. In other words, the world is constructed of intra-actions; it is intra-relational. Barad (2007) emphasizes that the world is an intra-active becoming that includes material nonhuman becoming. The world is not an addition of subjects/relata, but the other way around. The relata/subjects are temporary agential cuts of the world. Therefore, the notions of becoming-world and becoming-posthuman lie closer to the theoretical framework of this thesis.

However, there is one aspect that is important to emphasize: the constant movement, which in the theoretical framework was introduced as impermanence. To see becoming as the world existing in a state of impermanence is to take the relationality of everything into consideration, and decenters the majority position of the human subject. Therefore, becoming-impermanence would be a consistent term. However, as becoming is in most cases connected to the becoming of a subject position, I also require a version without the prefix. Thus, hereby *impermanence* is introduced as a co-concept for the theory of educational relationality. Impermanence is a posthuman response to intersubjective versions of becoming in education. However, the concept becoming-impermanence is used synonymously to impermanence when relevant for the context, for instance when one discusses becoming in general. What then

are the implications of adding impermanence to educational relationality? That will be discussed next.

Impermanence and educational relationality

Considering impermanence in educational relationality is not the process of a human subject becoming posthuman, but the ongoing becoming of a world, in which the human is an entangled part. Considering an educational subject as a part of the impermanent world is to decenter the human educational subject into a wider range of human and nonhuman agents. It is also about newness, Davies (2009) argues, “Each event, each becoming, is necessarily new, while also building on the old. Life ... continually evolves through the flows and intensities of each new encounter” (p. 20).

In addition, impermanence acts to decenter the humanist idea of education as being concerned with the flourishing of the human individual. In contrast to humanist ideas of what it means to be human, this question can only be answered as a consequence of the question of what impermanence means and, thereafter, what it means to be related.

This section started with a note on the humanistic individualistic ideas that Biesta, drawing on Arendt, was working beyond. One of the central characteristics of humanist thought is the separation between humans and nonhumans, and the centrism of humans. This distinction is not explicitly approached in intersubjective thought, however, since only human subjectivity is mentioned, nonhumans are therefore excluded. Hence, the human/nonhuman separation is implicitly continually reproduced through intersubjective ideas, for example Biesta’s version of becoming in education. I have proposed impermanence rather than becoming, based on a diffractive reading of Braidotti’s decentering ideas, Barad’s posthumanism, and the theoretical framework of this thesis, more specifically intra-relationality and post-anthropocentrism. I argue that the co-concept of impermanence can help to decenter intersubjective versions of becoming. Impermanence can also question the wider humanistic paradigm of human individualism. To conclude, one ambition of the concept of becoming is for Braidotti (and Deleuze) to overcome centric thinking, hence becoming-impermanence struggles against the majority position of the human subject in educational theory, more specifically in theories of educational relations. The aspect of impermanence cannot be found in Biesta’s view on becoming, but is central to educational relationality and to understanding its theoretical contribution.

Constantly replaced but constantly unique

In this section Biesta's (2010) proposal for uniqueness-as-irreplaceability is used as a point of departure for discussing uniqueness. Instead of a subject-centered and anthropocentric uniqueness, the co-concept *uniqueness-as-relationality* is introduced. Uniqueness is not a quality for the human subject, but is based on impermanence and intra-relationality.

To be replaced

I will start with a memory story that will influence this section. After three and a half years working as a high school teacher, I was accepted into a doctoral program; therefore, I quit my job. I said goodbye to my students and co-workers, erased the documents with my lesson plans from the computer, and took my personal belongings home. The teacher who was taking over my tasks was well qualified, but I reassured her that she was free to contact me if she had any questions. I got a kind but indulgent smile in response and an assurance that everything was going to be fine. The role that I had performed, which included grading, lecturing, and performing administrative duties, was over. The new teacher never contacted me. She and my students (they still felt like mine) were fine without me—I was replaced. The fact is that my role as a teacher had been so easily replaced by someone else stayed with me. As a teacher, I had fulfilled the purpose of my role just as I was meant to, and yet it bothered me. This memory came back to me when reading about Biesta's view on uniqueness and its role in educational relations. I knew I had been replaced, but did this also influence my uniqueness?

Biesta (2010) himself writes explicitly in critique of humanist influences in education, particularly the influence of Enlightenment humanism. Uniqueness read through this humanism was guaranteed through the becoming of the individual, whereas Biesta and intersubjective theorists argue that uniqueness comes from intersubjective becoming with the other. As argued in Chapter 2, one of the main ideas of humanistic thought is rationality. To be rational also means that two beings should come to the same conclusion; two students who follow the same instructions should provide the same answers. As long as someone says something rational, it matters less *who* says it: "This, in turn, means that when we speak in this capacity we do not speak with our own voice but with the common voice of the community we represent. When we speak in this capacity we are, therefore, interchangeable" (Biesta, 2010, p. 87). And, if one only speaks as a representative for a group—be it a student or a teacher—

uniqueness is lost. Instead, one speaks as from the position of identity. One of Biesta's (2006, 2010, 2014) main influences is Levinas who contributes a critique against humanism through a critique against identity. Biesta (2014) explains,

For Levinas, uniqueness is not a matter of our essence or nature—which also means that it is not a matter of identity. When we use identity to articulate our uniqueness we focus on the ways in which I am different from the other—which might be called uniqueness-as-difference. (p. 21)

Considering uniqueness with difference in mind, an individual uses the idea of the other to situate her/his own uniqueness in contrast to the other. The difference is built upon ideas of stable identity, and uniqueness relies on the idea that all human identities are in fact essentially unique. This is not what uniqueness means for Levinas and Biesta, instead they argue for a view on uniqueness without identity, and rather that it is an openness towards whomever this individual (subject) can or will become, which Biesta calls “uniqueness-as-irreplaceability”.⁶² Biesta (2014) argues that it is not the shape uniqueness takes that matters, but *that* human beings are unique. The important situations are the ones in which the uniqueness of the individual actually matters, “when it matters that I am I and not someone else. These are situations in which I am *singularized*—situations where *uniqueness-as-irreplaceability* emerges” (Biesta, 2014, p. 21).

It is time to return to the memory story of being replaced in my teacher role. The original inspiration of the memory story was the question of uniqueness-as-irreplaceability; the feeling of being replaced and of not being unique. I dare say that it is not a very posthuman memory story. To put it bluntly, it plays along the lines of a humanist idea and ideal of the independent individual who strives to contribute to the development and bettering of himself/herself as an individual and to the rational discourse of fulfilling a particular role, here the

⁶² Biesta's analysis departs from Alphonso Lingis' reading of Levinas, which distinguishes between “uniqueness-as-difference” and “uniqueness-as-irreplaceability” (Biesta, 2011, 2014). Todd (2003) also draws on Levinas, but uses the concept of “socially defined difference” when talking about the difference between people who are different from each other (based on identity etc.) and “ontological difference”, which is connected to uniqueness-as-irreplaceability in that it cannot be described or captured in knowledge, but rather arises as an ontological philosophical condition.

teacher, in the larger community. No wonder. I mean, why should I not also be as part of the humanistic ideas and ideals? They permeate our society, the teacher education I attended, and the education system I was part of. After reflecting upon my memory for a while, the feeling of being replaced diminishes and I begin to notice other things. Since I still live in the same city as I was previously teaching in, I occasionally run into former students. I have met several students: the student who I helped to find the right resources to facilitate for dealing with his dyslexia; the student who I wrote an ‘incident report’ on after she cursed at me; the student who once told me that his family was being kicked out of their apartment; the student who I helped to achieve a higher grade. These events had happened to us, and not to anyone else. The situations had occurred, but not because of the prescribed roles of teachers and students. It was not my identity, nor any single student’s identity that provided the foundation for the uniqueness—they were all relational events carrying their own uniqueness.

One could argue along with Biesta that it was the intersubjective meeting between me and the students that created the uniqueness-as-irreplaceability, and that it was my far-too-individualistic mindset that contributed to my doubts about uniqueness in the first place. However, reading the story through Biesta along with new memories, meetings, and narratives created meaning as an intersubjective notion of uniqueness-as-irreplaceability. The comfort lies beyond the roles, or fixed ideas about what a human is, but in the relations and events. This comfort is deceiving, because it is still based on some basic humanistic ideas, such as anthropocentrism and subject-centrism. When using a post-anthropocentric critique along the lines of impermanence, it is easy to see that the focus of the memory stories lies with the human subjects. The memories are constructed from a human-centered position with a complete focus on the roles of the teacher and the student as the main protagonists of education. What other stories are there to give an account of posthuman educational relationality? Were not the chairs, computers, books, lockers energy drinks, or mobile phones unique, or part of any unique interaction? The second aspect that is lacking in the memory story is intra-relationality. The focus on roles and separate individuals obscures the relationality of the story.

My memory of the unique events that happened to us is more complex than intersubjective analysis allows. For example, the incident in which the student cursed at me is not a separate event, but is involved in a complex bundle of intra-actions. It involves: a decision from the school board not to accept late

arrivals, and a rule to lock the door after the lesson had begun; a late bus (or was it a late student?); a lock on the door; a glass window next to the door (which the curse was shouted through); an affected student; the presence of adrenaline; the cultural knowledge of the sensitivity of a swearing word; the family's social security benefits which risked being cut back if the student's absence overran 20%, etc. Similar analyses are possible to perform on any of the events that are included in the memory story. Notice how the story is constructed of a bundle of relata. The intra-relationality cannot be completely framed, but slips away.

I would like to include a second example: dyslexia. When meeting one of my students at the local super market, I revived the memory of us going to a center that helped us to choose aids that would help him manage to read and write better. This story involves plenty of entangled factors: concerned parents, computer software tools, lack of help at the previous school, an idea of a normal reading performance, a bus ride to the center, the functionality disorder category of dyslexia, the reading performance tests, the neurological connections in the student's brain and its connection to his vision and his writing hand, etc. To use Barad, these are the relata of the material-discursive entanglements. Now, the new stories are post-anthropocentric, but definitely not less unique. When the human subjects and the educational roles are decentered, new aspects appear. It is not the distinct relata itself that is unique; rather, uniqueness is inherent in the impermanence of intra-relationality.

Uniqueness-as-relationality

What then happens to uniqueness? The aim for Biesta to use uniqueness-as-irreplaceability is to state the value of each human subject, and letting each student explore her/his own becoming. From the view of educational relationality, uniqueness is connected to the post-anthropocentric processes of the intra-relationality as explored above. Considering events as intra-actions creates a view in which everything is unique and in constant change. If one starts from an idea of impermanence, being replaced is the foundation of how the world is constructed. The idea of the self as a stable subject is under scrutiny. Previous views on roles or subject positions are not properly taking impermanence into consideration. Change is not a disruption of the subject. The position of the subject is always a temporary position which is different from second to second; hence, the world is always being replaced.

From a posthuman perspective, we ourselves and the world around us are both changing or in the process of becoming-impermanence. Educational

relationality is about reconciling with impermanence. Instead of a fear of being replaced, or of not treating one's students as unique individuals, one could shift to an acknowledgement of the never-ending intra-actions and unique events and meetings becoming-impermanence creates. For educational relationality, the co-concept of *uniqueness-as-relationality* is introduced, which means acknowledging and making use of the insights of post-anthropocentrism and intra-relationality.

Drawing on an example from an early childhood practice of using a microscope, Lenz Taguchi (2010) lists the intra-actions involved: the microscope, the children's discursively embedded thinking, previous experiences, and, "the matter/object [the children and the adults] are observing in its uniqueness" (p. 73). Consciously or not, it is the matter which is described as unique, not the human aspects. Using an intra-active approach focusing on the relationality creates a view on any relata always being a part of intra-actions, rather than being an entity with properties. The matter/object that was observed 'in its uniqueness', is also part of the intra-actions between the microscope and the viewer's eye. Each intra-action creates a unique reality independent of human involvement, thus, the observed object is also unique when it is not being observed. Hence, uniqueness-as-relationality is distinctly different than from an intersubjective approach. For Biesta, the world consists mainly of individuals and the social arena; replacement of the individual can occur if s/he is mainly seen as a part of the social interaction, not as an individual. In contrast, a posthumanist world consists of the world's different realities. The main difference is Biesta's subject-centrism. Educational relationality does not start from a view of the subject, but from uniqueness-as-relationality. I will develop this notion using impermanence next.

Even if intersubjectivity for Biesta does not represent something that is completely stable, nor is it impermanent. The Buddhist concept of impermanence means that the world is in constant movement. Starting with the notion of impermanence, all things are in motion, and states of permanence are illusions. Let us return to a previous quote from Biesta. He claims that there are specific situations "when it matters that I am I and not someone else. These are situations in which I am *singularized* – situations where *uniqueness-as-irreplaceability* emerges" (Biesta, 2014, p. 21). Accordingly, uniqueness is something that emerges as a guarantee for not mixing two people up, or replacing one with another. What about at other times? Drawing on impermanence, uniqueness-as-relationality is not emerging *from* somewhere; emergence is an inherent quality of the impermanent world. However, the self is

not singularized here. Instead, the idea of the self is, in terms of impermanence, the most deceiving of all permanent illusions since it attaches various experiences, feelings, and knowledges to a particular sense of self. Todd (2015a) argues, in her reading of Buddhism and Levinas, that both see the self as being subjected to change as a result of its encounters. Buddhism uses impermanence as a foundation for being, decentering, and dissolving permanent illusions of the self. Levinas, on the other hand, is critical towards the idea of totalizing encounters with the other based on sameness, and the self is instead ethically responsible for the infinity of the other. From both the Buddhist perspective and Levinas' view, a decentering of the subject position is the foundation for living an ethical life; the difference is that, whereas Levinas views the direction as from the self towards the other, for Buddhism, the direction is from the self into the world. But to return to impermanence, for something to be replaced is a foundational aspect of life. Rather, *not* being replaced could be a state of permanence, thus, an illusion.

Relationality as proximity

From separation to proximity

A common idea in intersubjective theories of educational relations is that the function of the relation is to connect the student and the teacher and to bridge the separation between them. In order to create this bridge, educational theorists have turned to social psychology theories (Aspelin, 2012), dialogue theories (Sidorkin, 1999), and to the ethical philosopher Emmanuel Levinas (Biesta, 2006; Todd, 2003). The problem with these theories is that the relation is seen as a space for educational subjects to meet and change. Thus, they are still subject-centered, not relation-centered. In addition, the intersubjective theories are anthropocentric, excluding nonhumans and materiality from the theories of educational relations.

Joldersma (2002) uses Levinas' notion of asymmetry to argue that "pedagogy is an asymmetric relation between persons. In the pedagogical moment, the teacher is teaching and not learning, and the student is learning and not teaching. Without this asymmetry, there may well be no learning or teaching" (p. 181). Levinas' asymmetrical positions are connected to the already existing roles of teacher and student, but also to what it means to be a person—a human. The tension in the asymmetry is thought to create learning and teaching.

A different way of conceptualizing asymmetry in educational relations is argued by educational philosopher Sharon Todd (2003):

Pedagogy seesaws between the “bringing more than I contain” that teaching aspires to and the “receiving beyond the capacity of the I” that learning strives to achieve. Within this movement, of course, there are many surprises and shifts, and the roles marked out for teachers and students are not so rigid as perhaps they first appear. (p. 30)

For Todd (2003), asymmetry is indeed the foundation of pedagogical activity, but she acknowledges a different kind of asymmetry than the one espoused by Joldersma. The asymmetry does not necessarily concern the roles of the student and the teacher, but rather a more essential difference between subjects. Maybe the teacher and student roles are not so rigid after all, Todd argues. Thayer-Bacon (2004) agrees, and calls the roles “fluid, flexible, and often interchangeable” (p. 165), and in addition, Conroy (2004) values the liminal spaces before the teacher and student roles. In the development of the theory of educational relationality, disintegrating the educational roles is an important step towards a shift from educational subjects, to educational relationality. Instead of a relation consisting of separated entities and temporary interaction, a posthuman approach proposes intra-actions, entanglement and materiality as the leading forces of relationality. What then is a posthuman contrast to education relations based on separation? In this section, the co-concept of *proximity* will be developed to answer this question. In short, proximity involves the sensation of being close in relationality with an emphasis on ethics and materiality. Reading Levinas through Barad, proximity does not allow for the view of educational relationality as primarily consisting of educational subjects and roles. Further, it facilitates the post-anthropocentric analysis of educational relationality consisting of both humans and nonhumans. It is argued that to be in proximity means to deal with materiality, ethics, and sensibility.

Proximity is borrowed from Levinas (1969, 1998), and the concept has also influenced Barad (2007). I will argue that it correlates more with posthuman notions than with post-structural thinking. When developing educational relationality, the co-concept proximity will be of greater importance for two reasons. First, it makes sense to talk about proximity with an intra-relational approach, as it is based on entanglement, sensitivity, and materiality. As argued above, talking about relations as asymmetrical too often brings up the question of the entities in the relationship and their separation, instead of the relationality

itself, which I feel proximity deals with. Secondly, by using Levinas (and the parts of Barad's work which is influenced by Levinas) I can deal with one aspect of posthuman philosophy that sometimes is overseen or under-emphasized: ethics. Much of the time, books and articles that benefit from posthumanism do not approach the ethical aspect not until the end of their discussions.⁶³

Proximity

Todd (2015b) reflects on the last 15 years of using Levinas in educational theory and concludes that after focusing on asymmetry, the self-other relation, and the infinite ethical responsibility, the educational field now requires new productive intersections with Levinas' work.⁶⁴ In her educational analyses, Todd (2015a, 2015b) focuses on sensibility, materiality, and embodiment, through placing Levinas in relation to new conversation partners.⁶⁵ Todd (2015b) refers to the contemporary use of Levinas as the third wave of Levinas scholarship; here Levinas is used to approach questions involving animals, technology, environmental issues, and ecology.⁶⁶ It is not a coincidence that these aspects are beyond strictly human considerations, but approach aspects of human-entanglement and ethical dilemmas that both humans and nonhumans are involved in. To explain this with Braidotti's (2013) view on posthumanism, the first and second wave of Levinas studies were involved with a continuation of the humanist critique; now, a post-anthropocentric critique is also introduced. The aspect of post-anthropocentrism will be addressed further down in the analysis.

When searching for a productive alternative to separation and asymmetry, the concept of proximity appears as an intriguing alternative. The choice of

⁶³ I can mention two examples that are central to this thesis. In Barad's (2007) *Meeting the Universe Halfway*, ethics is mentioned early on, but gets its own chapter towards the end. In Lenz Taguchi's (2010) book on intra-active pedagogy, the ethical implications are developed in the last chapter.

⁶⁴ Reviewing the educational literature on Levinas is beyond the scope of this thesis. However, my reading in this regard is influenced by Egéa-Kuehne (2008), Todd (2003), Holmgren (2006), Bergdahl (2010), Strhan (2012), Kallio-Tavin (2013), Säfström (2005), and Halvars-Franzén (2010). See also Ceder (2014).

⁶⁵ For a discussion on Todd's (2003, 2015a, 2015b) methodology, see Chapter 4.

⁶⁶ For some overviews, see Edelglass et al. (2012), or Atterton and Calarco (2010).

proximity lies close to Todd's (2014, 2015a, 2015b) recent interest in sensibility and embodiment. At the same time, I am also interested in the post-anthropocentric analyses of Levinas, as a result of the theoretical framework of this thesis. Therefore, I would locate this analysis clearly in what Todd (2015b) calls the third wave of Levinas scholarship.

Levinas (1969, 1998) argues that a human being is in the world with an absolute responsibility for the other. He is critical to any universal model reproducing same-ness and symmetry. Instead, the foundation of ethics and being is infinite asymmetry. However, how can people meet if the self and the other are separated in an asymmetric relation? In addition, Levinas' (1969, 1998) philosophy also consists of a sense of closeness in the relation, namely proximity. Levinas (1969) argues that proximity is "an ineluctable moment of the revelation of an absolute presence" (p. 78). This presence does not just exist because one knows it exists, but because of the sensation it brings. Further, proximity is the condition for relationality, or at least an essential part of relationality.

The proximal encounter with the other is according to Levinas (1998) a sensation that directly affects the body before language or knowledge—before being able to cognitively label the sensation. Accordingly, proximity and sensibility is for Levinas an embodied quality of a relationship. Todd (2015b) argues that for Levinas, "Sensation is not a 'phenomenon' or an 'appearance', but a rhythm or vibration experienced directly through contact" (p. 7). The vibration is a material sensation that affects bodies. In *Vibrant Matter: A Political Ecology of Things*, Bennett (2009) studies how materiality and things are acting upon the world, referring to this as "vitality". Thus, materiality is not something stable for humans to be in control of, but something fundamental vital and vibrant—and impermanent. Drawing on the definition of this co-concept presented earlier in this chapter, impermanence sees the world as continually changing or becoming. Barad (2007) states in her reading of Levinas that all aspects of the world are already entangled "through the various ontological entanglements that materiality entails" (Barad, 2007, p. 393).

Finally, proximity is the potentiality for ethical encounters, not through considering the encounter as sameness, but through openness and wonder. Barad (2007) explains that Levinas' ethical subject is "an embodied sensibility, which responds to its proximal relationship to the other through a mode of wonderment that is antecedent to consciousness" (p. 391). For Barad (2007), ethics extends beyond something human-exclusive: "What is needed is a

posthuman ethics, an ethics of worlding” (p. 392). This Baradian reading of Levinas as an ethics of worlding focuses on proximity. Instead of an ethics created by separated entities with asymmetrical positions interacting with each other through otherness, an ethics of worlding is post-anthropocentric and intra-active: “We (but not only ‘we humans’) are always already responsible to the others with which we are entangled” (Barad, 2007, p. 393). It is the fact that we are entangled through proximity that creates the ethical responsibility. As Barad (2007) states when she is in her poetic mood: “A delicate tissue of ethicality runs through the marrow of being” (p. 396). For Levinas (1969, 1998), ethics is about encountering the other and being ethically responsible for the other. Since the topic of this chapter is proximity and the role it can play in educational relationality, the vocabulary and focus is slightly changed; accordingly, the foundation of Levinas’ ethics is still implied for educational relationality. Seeing ethics this way refers to Todd’s (2003) Levinasian argument that ethics should not be *applied*, but rather be *implied*. Accordingly, when working with proximity as an ethical concept, I will focus on exploring its *implications* for educational relationality. Not including ethics from the beginning is to miss the full extent of educational relationality. However, instead of a direction from one person towards another person, which has been common when using Levinas, the focus on relationality in this analysis uses proximity for decentering the educational subject positions.

In proximity with the nonhuman

What are the ethical problems in the world for philosophers to deal with today? Braidotti (2013) argues that apart from the ethical dilemmas remaining for humanity—wars of course, but also migration and border issues—other contemporary ethical issues are for example robotics, genetically modified food, artificial intelligence, sustainability, and animal rights. These are not questions about human beings, but rather how humans act towards nonhuman beings or elements and where the boundary between the human and the more-than-humans lies. There are clearly post-anthropocentric issues. Accordingly, a critique against anthropocentrism is relevant with regard to ethics. As Braidotti (2013) proposes, there are two kinds of posthumanism: the critique of humanism, and the critique of anthropocentrism. Whereas Levinas proposes an alternative to humanism, striving to give back the value to the human subject, he does so without considering the anthropocentrism it brings. However, he is still of interest for developing the co-concept proximity. To understand why, we need to take a closer look of his philosophy.

The following quote is a helpful start: “Need we recall these inhumanities? The 1914 War... fascism, Hitlerism, the 1939–45 War, atomic bombings, genocide and uninterrupted war” (Levinas, 1990, p. 281). Levinas observed the inhuman deeds of his time, and came to the conclusion that humanity was in crisis, hence the critique of humanistic ideas. The observations were not neutral, but firmly connected to Levinas’ own origin and experiences. Levinas was born 1906 in Lithuania, but moved to France to study philosophy. As a French citizen, he was forced to complete military service when the Second World War arrived. Levinas was captured and spent the remaining years of the war in a Jewish labor camp. Levinas has written about his stay in the labor camp and has described the fact that the German Nazi guards did not meet the prisoners’ eyes, nor did they talk to the prisoners as human beings. They were Jews and were therefore treated worse than any other group of people. Levinas (1997) writes: “We were sub-human, a gang of apes... How can we deliver a message about our humanity which, from behind the bars of quotation marks, will come across as anything other than monkey talk?” (p. 153). Despite hard conditions, Levinas survived, but his entire Lithuanian family was killed (Malka, 2006). These experiences influenced Levinas’ thinking and in the post-war years, he developed a sharp critique against humanistic thinking and offered a new way of perceiving ethics. Cederberg (2010) argues that Levinas was indeed critical towards humanistic ideals, but at the same time he was trying to reconceptualize the human beyond Heidegger’s (1993) ontological philosophy. Levinas (1990) claimed Heidegger was “subordinating the human to the anonymous gains of Being and, despite its ‘Letters on humanism’, bringing understanding to Hitlerism itself” (p. 281). Levinas argues that philosophy should not start from a discussion of being, as Heidegger (2008) proposed, because this will transform philosophy into a philosophy of power (Levinas, 1969, p. 46). Instead, he proposed that ethics was the first philosophy.

The main problems Levinas and other philosophers dealt with after the Second World War were: how could this happen and how can it be prevented from happening again? Levinas’ answer was an ethics that guaranteed an ethical encounter. He wanted to propose an ethics for human subjects reinstalling the human value, and hardly ever wrote about ethical relations to anything but humans (Llewellyn, 1991a, 1991b; Bunch, 2014; Hantel, 2013; Gunkel, 2007). One particular event Levinas described from his prison years is of interest from a posthuman perspective: the meeting with Bobby. Levinas (1997) writes:

And then, about halfway through our long captivity, for a few short weeks, before the sentinels chased him away, a wandering dog entered our lives. ... we called him Bobby, an exotic name, as one does with a cherished dog. He would appear at morning assembly and was waiting for us as we returned, jumping up and down and barking in delight. For him, there was no doubt that we were men. (p. 153)

This quote from the short essay *The Name of a Dog, or, Natural Rights* (1997) has been the target of several analyses concerned with animal studies and posthumanism (Hantel, 2013; Llewellyn, 1991b). Contrary to the treatment he received from the guards, Bobby greeted Levinas. Bobby did not speak a human language, and did not communicate in any other strictly human way. Bobby acted independently of the categorizations formulated by the Nazis.

There is a general understanding that Levinas' philosophy is anthropo-centric,⁶⁷ but there is an ongoing debate surrounding the implications of that. Without going into details, I will briefly recapture two central threads in this debate. One side argues that he proposed not only a categorical but also an ethical distinction between humans and animals, which makes his project anthropocentric (e.g. Llewellyn, 1991a, 1991b). The other side agrees that Levinas' text is anthropocentric, but sees it as a problem with the examples in his vocabulary rather than his ethical program. His ethical project is not to be confused with a set of rules or attached to a specific set of categories—since that is an approach he actually opposes (e.g. Welz, 2011; Bunch, 2014). Beside the more general philosophical analyses, the discussion on Levinas' anthropocentrism involves animal studies (Calarco, 2008), environmental studies (Llewellyn, 1991a; Edelglass et al., 2012), and technology (Gunkel, 2007). Despite this, I have found hardly any use of a post-anthropocentric approach to Levinas in the extensive literature on Levinas, primarily in the field of philosophy of education

⁶⁷ Even more often, his androcentric language is criticized by feminist scholars (e.g. Irigaray, 1991; Chanter, 2001; de Beauvoir, 2010). One of the most frequent feminist Levinas critics, Irigaray (1991), writes bitterly that Levinas “abandons the feminine other, leaves her to sink, in the darkness of a pseudoanimality, in order to return to his responsibilities in the world of men-amongst-themselves” (p. 113). Levinas has also been charged with being Judaocentric (Badiou, 2002; Fagenblatt, 2010). Katz (2003) notices connections between Levinas' Jewish Talmudic writings on gender and the role gender plays in his general philosophical ideas. Accordingly, the question of androcentrism might actually be a question of Judaocentrism; at a minimum, they are intrinsically entangled.

and research on educational relations. Taking Levinas' ethical ideas concerning proximity into consideration for the theory of educational relationality requires a diffractive reading of Levinas through posthuman philosophy.

Biesta (2015) argues that it is always important to recognize the problems behind the philosophers' ideas. To criticize a philosophy for not giving an answer to a question that s/he was not trying to resolve is a bit unfair, and not very productive. Instead, Biesta (2015) proposes a pragmatic view of developing new or adapted philosophies in order to answer the questions one poses. The diffractive methodology of this thesis follows Biesta here. Therefore, in order to resolve the question of a proximity for educational relationality, I will perform a diffractive reading of Levinas and posthuman philosophy.

Barad (2007) is inspired by Levinas, and in her diffractive reading of his texts she adds that the notion of ethical relations "extends to the other-than-human" (p. 392). For Levinas the face is a central symbol, in that meeting the face of the other creates the ethical responsibility. Barad (2007) contests the more literal readings that claim Levinas' use of the face as evidence for an ethics exclusively for humans. She argues that Levinas' human-centered ethics is not enough when we are continually confronted with the ethical situations of nonhuman agents that we cannot fit into the category of the human. "A humanist ethics won't suffice when the 'face' of the other that is 'looking' back at me is all eyes⁶⁸, or has no eyes, or is otherwise unrecognizable in human terms" (Barad, 2007, p. 392). Therefore, we are in need of a posthuman ethics, which is what proximity is to educational relationality.

Proximity in educational relationality

Next I will propose three points for proximity in educational relationality: post-anthropocentric materiality, sensibility, and ethics.

In his reading of Levinas, Biesta (2014) opens up the possibility of otherness as something more than human: "transcendence cannot be contained to the other as another human being" (Biesta, 2014, p. 56). This is a rare occurrence as

⁶⁸ What is intended by "all eyes" is Barad's (2007, Chapter 8) discussion on the brittlestar, a relative to the starfish and the sea cucumber, which scientists previously thought to be a blind, brainless animal. It turns out that brittlestars were actually not eyeless, but that their skeleton systems actually also functioned as a visual system, hence they were "all eyes".

Biesta's theories otherwise only deal with human beings. In her recent work, Todd writes "others" twice with an additional parenthesis: "our encounters with others (human and nonhuman alike)" (2014, p. 232) respectively "contact with others (human and nonhuman alike)" (2015b, p. 8). In this way, she takes into account the way nonhumans co-constitute the human body. Hence, both Biesta and Todd are taking the first step in leaving anthropocentric readings of Levinas and educational relations.

The following quote may be of interest when reading Levinas from a post-anthropocentric approach. He writes: "The other is maintained and confirmed in his heterogeneity as soon as one calls upon him... The invoked is not what I comprehend: *he is not under a category* (Levinas, 1969, p. 69)". Here, the other resists categorization, which in this posthuman analysis also involves the human category. How could one know which *relata* (e.g. a book, a teacher or an apple) will actually be a part of educational relationality? Thinking from a post-anthropocentric perspective therefore means that educational relationality involves not only humans, but dogs, computers, drawing pads, candles, fern leaves, dancing, or art events.

What really differs in my use of proximity from others' use of Levinas in educational theory is not what species the other is, but the shift from self/other to relationality. In Levinas' writing proximity is not the primary focus, though, in the light of relationality, it is quite central. There is a risk of Levinasian inspired theories of educational relations focusing too much on the self/other dualism. This involves repeating fixed ideas about the educational roles. To learn from Levinas is to think without reproducing sameness, thus the importance of creating contrasting ideas. Instead of placing the other before the I, educational relationality places the process before the fixed. This posthuman approach acknowledges the becoming of not only human subjects, but also becoming-impermanence. Hence, the primary project of educational relationality is not to define what or who is involved in education, but to focus on relationality. Proximity does not mean that the self is instantaneously in contact with the other when they enter a meeting; rather, proximity means that relationality is instantaneous and exists before distinct bodies. Thus, when talking about self/other, viewer/object, or student/content, the parts are already entangled in proximity. This notion has extensive consequences for education and learning, which will be further developed in Chapter 6.

As stated above, proximity in educational relationality is also about sensibility, that is, closeness is a material sensation. Barad's (2007) philosophy is often

referred to as new materialism. Regarding the recent influence from new materialism in educational theory Todd (2015b) concludes:

There is here an emphasis on activity and movement, materiality itself being seen not in terms of substance, but as a constellation of processes. Human bodies are therefore not seen to be merely the physical counterpart to a self, but part of the very materiality that comprises any space (p. 3)

She adds that the sensible aspect of materiality has not yet been approached; research only states *that* materiality matters, not *how* materiality matters in terms of the constitution of the body. Instead, she draws on Probyn (2004), Sparrow (2013), and others to develop an embodied sensibility. It was this analysis that first drew my attention to the concept of sensibility, seeing its potential in emphasizing this aspect despite the problem of putting it into words. Proximity consists not only of being in relationality, but also includes sensing relationality. For Todd (2015b), this sensation happens inside a distinct human body, whereas for educational relationality the sensation is in the intra-relational proximity. Even if a sensation is felt in a distinct body, it is not limited to this place. For instance, when my dog, Abdi, is making cute sounds in his sleep, it can be a sensation for me. However, I would not have had that sensation without Abdi. When dealing with proximity, it does not refer to a particular body, or a feeling that a human can express properly. Proximity is a different reality that emphasizes the relational intensities rather than something that has clear categorizable boundaries.

In an intra-relational analysis, the shift in view from separated subjects to entangled relationality is central to proximity. As argued above, vocabulary is problematic since language consists of categories. Levinas' plea for ethical responsibility is needed in educational relationality to provide a constant reminder of the ethical problem of totalizing categories. The plea for ethical responsibility in educational relationality is similar to the aspect of intra-relationality. An intra-relational approach places impermanence and proximity in first place, that is, it produces a different solution to Levinas' critique of totalizing categories. Instead of placing the other before the I, as Levinas does, intra-relationality places the process before the fixed. This posthuman performative approach acknowledges the becoming of not only human subjects, but also the impermanent becoming of the world.

In other words

The following chart summarizes in a simplified way the transformations caused by the diffractive readings in Chapter 5.

The becoming of the educable subject, instead of a more stable being	→ focus on the becoming of the world in constant movement, introducing <i>impermanence</i>
The importance of guaranteeing human beings uniqueness-as-irreplacability	→ uniqueness in connection to the constant intra-relational reconfigurings of the world, introducing <i>uniqueness-as-relationality</i>
Relationships based on separated educational subjects	→ relationality based on ethical and material closeness, introducing <i>proximity</i>



CHAPTER 6. Education

“Between” will never be the same.

—Karen Barad

Introduction

Chapter 5 described what “relationality” means in terms of the theory introduced in this thesis, educational relationality. A shift from the constituents of a relationship, to a view of the relationality in a relationship was established based on a post-anthropocentric and an intra-relational approach. In other words, this thesis proposes a shift from educational subjects to educational relationality.

The present chapter takes as its point departure this understanding of relationality and outlines what is educational in educational relationality. Hence, it is only the role of education in the theory of educational relationality that is of interest in this chapter. It is not within the scope of this thesis to create a new educational theory capable of covering all aspects and nuances of education, such as curriculum, grading, socialization or didactics. Rather, educational relationality is a theory proposed as an alternative to the intersubjective approaches to theories of educational relations, and explores the possibility of considering educational relations from a posthuman perspective.

With that said, educational relationality does question some central assumptions of education that have been taken for granted. Since I argue for shifting the focus from educational subjects to educational relationality, this transformation involves a shift in location and agents. Hence, the central aspect is not to rethink what education *is*, but where education is located, namely in relationality.

This chapter consists of two transformations. The first part starts in Biesta’s (2004) location of education to a gap between educational subjects, but it is

argued that for educational relationality it is more relevant to locate education to the activity of education. The co-concept of *edu-activity* is proposed for this thesis and developed with Barad's notion of touch. Edu-activity is an instantaneous, multi-directional, ethical, and material process.

A central idea in theories of educational relations is creating relations in order for the student to learn; hence, the analysis is not complete without exploring what posthuman relational learning would mean. I am not attempting to construct a new learning theory that takes all aspects of learning into consideration. Instead, what is of interest is the role learning plays in educational relationality. As in the case of education, the focus here is not to figure out what learning *is* but to discuss where learning is located. The discussions on learning in posthuman educational research will be reviewed and used as inspiration. In this second transformation, the co-concept of *intelligibility* is introduced as a posthuman learning.

Locating education to edu-activities

The location of education is one of the central questions in educational theory and philosophy. Once education is located, it calls for new questions, answers, and proceedings. Often, education is located either with the teacher or with the student, as discussed in Chapter 1. In contrast, the area of educational relations often locates education *between* individuals, that is, between a student and a teacher. In particular, this is the leading idea in intersubjective approaches to educational relations, which the following educational theorists seem to embrace. von Wright (2000) focuses on educational relations as existing between the teacher and the student where the student is seen as a *who*, not a *what*. Sidorkin (2000) states that "relations cannot belong to one thing; they are the joint property of at least two things. Relations located, so to speak, in-between things, and are located in neither of the things joint into a relation" (Sidorkin, 2000, p. 3). In his study on the work of the teacher, Conroy (2004) focuses on liminality as a metaphor for, among other things, the space between the teacher and the student. A final example is Biesta (2004) who writes:

The idea that education is an interaction between the (activities of the) educator and the (activities of the) one being educated is, as such, a sound idea. It shows that education is basically a *relationship* between an educator and the one being educated. But in order to understand the precise nature of the educational

relationship, we should take the idea that education consists of the interaction between the teacher and the learner absolutely seriously. We should take it in its most literal sense. If we do so, it follows that education is located not in the activities of the teacher, nor in the activities of the learner, but in the interaction between the two. Education, in other words, takes place in the gap between the teacher and the learner (p. 12–13).

Biesta argues that there is a gap between students and teachers and that this gap is the foundation for communication and education. The important issue for Biesta when locating education to the gap is that it is neither placed at the student's side, nor at the teacher's side. Biesta's argument is to propose a different direction within educational theory, namely the interaction of subjects. As has been shown continually in this work, intersubjective theories of educational relations are, despite their focus on intersubjectivity, subject-centered, and as in the quote above, also connected to the dualist teacher/learner roles. The distinct subjects are needed for the idea of the gap to work. This gap can be compared to an empty space where separated subjects come together to interact. The idea of the gap requires separated entities because this is the nature of the interaction. As argued earlier, this is a result of the subject-centrism of intersubjective approaches to theories of educational relations. Whereas educational relationality in one way follows Biesta in that it is neither located in the student or the teacher, its approach is not interaction but intra-relationality. From an intra-relational perspective, when starting from educational relationality instead of interacting educational subjects, the location of education is not a place where educational subjects interact, but is the intra-active process itself. For Barad (2010) "between" presupposes an existing dualism with distinct entities. For intra-action to take place does not require a particular space for subjects to meet. Instead, for educational relationality, the meeting place—the relation—is what education *is*, what it starts from, and where it is located. It is not a secondary space that existing educational subjects enter. Hence, the words "gap" and "between" do not correspond with an intra-relational approach. Where then to locate education?

In the introductory quote, Biesta (2004) is ambivalent concerning what is actually interacting in the gap. Biesta (2004) states that "education is located not in the activities of the teacher, nor in the activities of the learner, but in the interaction between the two" (p. 13), thus the question is what he means by "two": the two educational subjects (teacher and student), or the two educational activities. In other words, is education the interaction of the

educational subjects themselves or the interactions of the *activities* of the educational subjects? Regardless of Biesta's original intention, to think of education as an interaction of activities instead of an interaction of subjects could help to further develop educational relationality. To start with, the location of education for educational relationality is placed in the educational activities. What then is a posthuman educational activity? Next, the role of activities in educational relationality will be developed by introducing the co-concept of *edu-activity*.

Edu-activity

Here I propose that in educational relationality, education is located in the educational activities. As activities are not seen as interactions but as post-anthropocentric and intra-relational, the co-concept *edu-activity* will be used to emphasize this aspect of the educational relationality theory. An edu-activity is any activity that has an educational purpose, though what is intended by this concept differs from normal usage. The approach of considering education as edu-activities can be exemplified and/or adapted to a wide range of ongoing activities in educational settings such as calculating, understanding, drawing, and discussing.⁶⁹ However, to develop these particular edu-activities is beyond the scope of this thesis and, instead I will outline a few central ideas of what signifies an edu-activity.

One of the central consequences of a post-anthropocentric theoretical approach is to rethink what counts as agency. This is one of the most central contributions of posthuman philosophies. For instance, in Braidotti's (2013) post-anthropocentric critique she argues that interactionism prioritizes human qualities and instead she suggests an analysis of the "activation" of posthuman encounters. Another example is Barad's (2007) agential realist philosophy since agents, human and nonhuman alike, are continuously constructing reality through their intra-actions. In actor-network theory, human and nonhuman actors are actively connecting and creating networks (Latour, 2005). This post-anthropocentric approach to agency is quite uncommon in a traditional humanistic view of education that separates active human agents from passive objects (Waltz, 2006). When human agency is decentered in posthuman

⁶⁹ For an analysis on reading as an edu-activity, see Chapter 7 on literacy dogs as an example of educational relationality.

educational contexts, it opens up a wider range of activities since both humans and nonhumans are seen as active agents (Lenz Taguchi, 2010; Sørensen, 2009; Hultman, 2011).

Any agent/relata in edu-activities exists through its intra-actions with human and nonhuman agents. An edu-activity, therefore, is not necessarily something a human subject does, but is an aspect of relationality that has an educational purpose, here analyzed as intention and direction. Intra-relationality does not consider agency as an act done by an agent, hence the description of edu-activity as post-anthropocentric agency is not exhaustive. Relationality already means that things are happening; it has an agential quality embedded in its philosophy.

There is one concept in particular that will be used in order to develop the quality of an edu-activity, namely Barad's (2012) "touch":⁷⁰

When electrons meet each other "halfway," when they intra-act with one another, when they touch one another, whom or what do they touch? In addition to all the various iteratively reconfiguring ways that electrons, indeed all material "entities," are entangled relations of becoming, there is also the fact that materiality "itself" is always already touched by and touching infinite configuring of other beings and other times. (p. 215)

What Barad (2012) here calls "infinite configurations" I interpret as the impermanence or intra-relationality in this thesis. Barad's touch describes the infinite configurations as descriptions of materiality when talking in terms of both atoms touching and the touch of human skin. Touch is intra-active which means that each relata co-constitute the relation: to touch is simultaneously to be touched. One touch opens up new possibilities of touch, etc. Touch does not necessarily have a direction to or from a human agent but can appear and act in various material configurations. Barad (2012) continues:

⁷⁰ In comparison, Todd (2014) uses Irigaray's touch as a metaphor: "it is in one's contact with an other in the here and now the future opens up" (p. 242). Todd (2014) argues that touch shows that education is about the everyday sensibilities of pedagogical relationships involved in the present moment. Irigaray is well known for her embodied metaphors that take both the parts of the relation as well as the relation itself into consideration. Irigaray's notion of touch corresponds quite well with Barad's (2012), though it focuses mainly on human bodies. Thus, she does not add to the current post-anthropocentric discussion, and her contribution is therefore restricted to this footnote.

In an important sense, in a breathtakingly intimate sense, touching, sensing, is what matter does, or rather, what matter is: matter is condensations of response-ability. Touching is a matter of response. Each of “us” is constituted in response-ability. Each of “us” is constituted as responsible for the other, as being in touch with the other. (Barad, 2012, p. 215, italics in original)

To “touch” is to already to “be in touch”, instantaneously and responsibly. There are four central points here that must not be lost. The first aspect is that touch is instant and immediate; touch does not consist of entities that enter a relation. Secondly, when touching something, you are simultaneously being touched; touch is never a one-way communication. Thirdly, touch calls for an ethical responsibility that is immediate and part of one’s being; one can never escape the demand for response-ability. Forth, ethics is not only concerned with human experiences of the world, but “is a question of material entanglements and how each intra-action matters in the configurations of these entanglements” (Barad, 2007, p. 160).

What then does this mean for edu-activities? To start with, “edu-activity” means to “already be in edu-activity”, which means that there are always ongoing edu-activities performing at various levels. Therefore, educational relationality is not primarily about creating possibilities for future edu-activities, but recognizing the edu-activities one is already part of, or exploring existing relationality as an edu-activity. Secondly, edu-activity is never a solitary act since edu-activities occur in responsive relationality. For a human agent it might require some adjustment to wait for a response from a nonhuman agent. In other words, one must be accessible to the material reconfigurations and touches that are taking place: the surface of a chair, the air through one’s nostrils, the chipping of paint on the wall, and so on. Thirdly, in Chapter 5 proximity was developed as an embodied ethical aspect of relationality. Together with the responsibility constituted in touch, the ethical dimension of edu-activity is established. It is an ethics that acts as a reminder to respond to the ethical challenges that one is entangled in. Edu-activities imply their embedded ethical dimension; ethics is not an applied external decree (compare with Todd, 2003). The fourth point, post-anthropocentrism was discussed as a part of the second point.

To conclude, edu-activity is not only a critique of anthropocentric education arguing for decentering the human supremacy and taking the agency of nonhumans into consideration. It is also a critique of the subject-centrism of education, which permeates most theories of educational relations, as discussed in Chapter 1 and 5. Edu-activities are agential relationality with an educational

purpose which has intention and direction. But in what way can education be seen as a purpose from a posthuman perspective? Next, the question of the intention and direction of the edu-activity will be discussed.

The intention of edu-activity

The notion of intention in education is usually connected to what humans define as active: rationality, cognitive aspects, and language. There are a wide variety of views on intentions: psychologically cognitive-based intra-personal intentions (Astington, 2001), sociocultural intersubjective intentions (Vygotsky, 2004), and embodied intentions (Smith, 2005). In educational philosophy and theory, the intention of the teacher is usually defined as making students learn (Noddings, 2012; Biesta, 2006, 2009). Todd (2014) argues that ideas of intention dominate the educational field so heavily that in order to theorize relationality from a different position, she explores ways to develop theories without them. Todd (2014) admits to temporarily wanting to bracket intentionality⁷¹ off, “in order to uncover the aspects of relationality that occasion one’s becoming” (p. 232). Of this reason, she installs a “pedagogical relationality” instead of an educational one:

This means that all kinds of relationships are pedagogical—one can speak of the pedagogy of a film or text (Lusted, 1986), just as one might speak of what one becomes in relation to a colleague, pet or friend. However, unlike the pedagogical aspects of a relationship, say, between siblings, friends colleagues or lovers, the relationship between teacher and student is doubly so, since it rests upon an educational intentionality, or ‘demand’ for change (Todd, 2003), that these other relationships do not. (Todd, 2014, p. 232)

In order to develop ideas of relationality Todd (2014) turns to the concept of pedagogy instead of education since the latter is too impregnated with purposes

⁷¹ This thesis takes as its point of departure the general terminology in which “intention” is connected to a mental idea of a commitment to carrying out an activity (Noddings, 2012). Todd (2014) is here following a tradition in educational research by referring to an educational purpose as “intentionality: (c.f. Macmillan & Garrison, 1988; Dhawan, 2005; Young & Tripamer, 2009). However, in philosophical terminology, “intentionality” is reserved for meaning the mind’s ability to form and represent ideas (Bretano, 1995; Dennett, 1987; Tomasello & Carpenter, 2007). Due to this thesis’ transdisciplinary approach I will adhere to this distinction and use the concept of “intention” to mean an idea with a purpose.

and intention. She does not expand further on the problem of intentionality and I understand the desire to escape this dilemma. Also Vygotsky (2004) admitted that intentions in interactive processes were “one of the murkiest and most difficult concepts to clarify” (p. 6).

However, for the project of educational relationality, it is not possible to bypass the question of how to deal with purpose and intention. If edu-activities are the location of education, in what way can intentions be understood as a posthuman “demand for change”? I will here expand on this concept because it is a clear example of education’s humanistic heritage and focus on cognitive functions. Working with educational intentions also creates the possibility of reconceptualizing the concept from a posthuman perspective. This investigation regarding intentions in education is far from exhaustive. Rather, it serves as an example in order to develop the concept of edu-activity as a critique of humanistic and cognitive-centric ideas. For further discussions on educational intentions, see the previous footnote.

Intentions are normally initiated in order for a human being to develop an idea of something, individually or socially, and then plan an activity that can create a result that corresponds with the idea. However, that description of intentions rests on several ideas that do not correspond with the theoretical framework in this thesis. To start with, to act upon something to create a change is not necessarily a quality limited to human beings. The idea that an intention is based on rational motives that can be made explicit through language and cognition is an anthropocentric humanist idea. Human beings constantly act with intentions that have little or no rational explanation. For example, if I am thirsty, I will drink some water. This act does not happen after a series of reasoned thoughts and judgments, but is instantaneous and impulsive. Sometimes I drink some water simply because the glass is in front of me, despite the fact that I am not thirsty. The feeling of thirst is not based on rational thought but on bodily functions such as hormones and osmosis, as well as mouth, stomach, and signal substances. Above, Todd (2014) described the intention as a “demand for change” and that is exactly what thirst is. The body is signaling its demand for changing its level of fluid by using the embodied feeling of thirst, which other parts of the body fulfill by reaching for a water bottle and raising it to the mouth. Hence, the intentional activity of drinking is deeply connected with embodied and material aspects, which are neither actively cognitive nor based on language. This kind of intention would in fact be described in a similar manner when my dog, Abdi, walks to his bowl and begins

lapping up water. The point is that intentions are not a rational human quality, but—in Haraway's (2003, 2008) view—a natureculture or material-semiotic quality. The function of humanistic views of intention is to exercise the activeness of human properties, whereas in educational relationality the activeness already exists in the relationality.

I will continue with a few animal examples. When a bitch is growling at a puppy because it is biting her nipples, the purpose is a clear demand for change, namely to educate the puppies to sucking instead of biting, even if she cannot put this intention into human words. As in the embodied intention of thirst, the bitch has an intention and a demand for change for her body. The intention here is not limited to the single dog relata, but it is activated relationally: sharp puppy teeth, the sensitivity of the area around the nipples, the neural system signaling pain, muscles that enables growling, the puppy's hearing, and their reaction to the growling. Let us examine another example: bees. The intention of a bee to collect pollen has a genetic origin, but the location of the pollen field is learned from other bees. Hence, the intention of the bee is both genetic and learned, which in human cases would be called both nature and culture. However, the intention of the bee cannot be expressed in human language, and is therefore usually reduced to being a peculiar nature phenomenon. As in the example with the bitch, the intention is not connected to an individual bee. The intention of collecting pollen consists of the relationality of field, air, genes, pollen, the bee's body, and its communication skills.

To analyze intentions from a strictly human perspective is a result of the idea of the superiority of the human cognition, which shadows other important aspects. Nonhumans and humans alike share this intentional natureculture demand for change. For teachers who create assignments for their students, the rational intention is only one aspect of wider spectra of reasons behind the choices of material and method. Human activities are intended in everyday routines, via external structures and by embodied signals. To describe such a complicated process as simply rational would be to reduce the complexity of intentions. As edu-activity is intra-relational the educational relata is not the most significant part of the educational process. The point is to direct attention to the edu-activity and the relationality rather than to the educational subjects. Hence, the intention of edu-activity can consist of activated relata in the shape of such segments, for instance a sentence in a curriculum, air temperature, feelings, bodily functions, a memory fragment of a lecture at teacher education

workshop, the furniture in a classroom, an event in the school cafeteria, and the sound of a winter-lazy wasp that suddenly decided to visit.

To conclude, intentions in edu-activity are not rational products constructed in the mind of a single human being, but appear in the relationality based on a variety of relata. But if the edu-activities are intra-relational and not specifically based on the intentions of the teacher, towards who or what are the edu-activities intended? Next, the direction of edu-activity will be discussed.

The direction of edu-activity

Locating education in posthuman edu-activities is way of decentering educational roles and dissolving the fixations of the humanist idea of education and the demarcated human bodies in a classroom. Previously it was concluded that the intentions of edu-activities are not based on the teacher's—or any single entity's—mind, but were activated in relationality. In other words, the purpose of education does not have a fixed origin, but what about the goal? Who or what is the target that education is directed towards? In the following discussion I argue that the direction of edu-activity is the direction relationality takes, which will be referred to as multi-directional. But we will start by talking about the movement these directions are describing.

In her posthuman analysis, educational researcher Springgay (2015) uses a distinction between relative and absolute movement. Springgay (2015) will here be quoted at length:

Relative movement would describe movement as the words that flow between students, a student picking up a pencil, moving a chair closer to a desk, or the students' bodies moving between different places in the classroom. And while all of these movements might be considered interconnected, each movement would be understood as discrete and individual, and privilege movement as human-organized and human-controlled. This means that objects in the classroom move because of the actions of the students' bodies. Movement is causal. What sets an object in motion is a body acting upon that object. (p. 80)

Relative movement is a humanistic way to think about movement in the classroom, and once again the focus on human actors is impregnating the description. Each movement has an origin in a human subject directed towards

another human or an object. An interhuman movement can be described as, for example, a teacher explaining something to a student, which has an intentional direction *from* the teacher and *to* the student.⁷² Movement can also be a discussion between two students in which the direction still is towards the student position. In short: relative movement symbolizes both the anthropocentrism and subject-centrism that is criticized in this thesis.

An alternative, and for this thesis a more appropriate way of thinking about movement in edu-activity, is what Springgay (2015) calls absolute movement. As she observes: “a body (human or nonhuman) in movement then, does not simply move between points, rather it exists *in* movement”; she continues: “In absolute movement bodies do not precede the classroom” (p. 80). And, I would add, bodies do not precede movement. Movement here is more like impermanence, the ongoing intra-relational movement of the world, as discussed in Chapter 5. What then are the directions for edu-activities seen from the perspective of absolute movement? This analysis is closely related to the intention of edu-activities, which are not fixed to particular educational entities but to the relationality of activated relata. The consequence of this analysis is that edu-activities do not have an intentional direction *from* an educational subject, nor does relationality have an intentional direction *towards* an educational subject. The purpose of the edu-activity is not directed towards a particular predetermined subject, but towards the intra-relational process. Springgay’s (2015) view on absolute movement is helpful in order to visualize movement without a student-centered direction. The classroom Springgay (2015) describes involves a wide range of ongoing movement in agential relations: ideas, bodies, and materiality shifting. Here, movement and transformations are the normal condition whereas stability and distinct subjects are temporary halts or agential cuts. To consider an educational setting in this way means to localize and encourage obvious and subtle edu-activities to appear from the absolute movement.

The post-anthropocentric approach opens up the possibility of directing education towards nonhuman relata. The intra-relational approach provides the understanding of relationality and the impossibility of fixing the direction

⁷² The discussion on the direction of education is more complicated than this. I will return to this question shortly when the direction of learning is discussed in the second transformation of this chapter.

towards a particular educational subject. Accordingly, the direction of education is embedded in the entanglement of the relata involved in the edu-activity. Since the absolute movement in a classroom is continuous, this means that the movement also has direction since everything moving is moving towards something. Hence, educational relationality is not non-directional. Rather, an edu-activity has a plurality of directions, though their intention is not defined by an educational subject but is an effect of relationality. The direction of edu-activity is simply the direction the relationality takes. I will refer to this as multi-directional. But in what way is the relational edu-activity learning? And how can learning be understood from an intra-relational and post-anthropocentric perspective? That is the challenge I will deal with next.

Intelligibility—posthuman learning

“What did you learn in school today?” is a standard phrase posed to many school children at dinnertime towards the end of the day.⁷³ The simple question contains several taken-for-granted ideas about what learning and education mean. The main point of the question is to gain an insight about the child’s development in school with a focus on what s/he learned. The question concerns the child in particular as a learning subject, not what any other child learned.⁷⁴ The central verb “learning” implies that this is the expected outcome of going to school. To be precise, the expected outcome is the learning of the single child. What this learning is not specified, but the question “what” implies that the learning in school has a shape that is possible to communicate as a summary at the end of the day.

Learning and education are entangled in various ways and consist of different aspects. Education, as discussed above, is involved in intentions, particular kinds of learning, and other processes. Learning in itself is a process that can occur outside of educational purposes, for instance learning while travelling or as a result of having a child. Education and learning have a common interest in

⁷³ This is a typified example used rhetorically to introduce a discussion on the connection between education and learning.

⁷⁴ To be grammatically correct, in English “you” could also imply what the collective learned. In Swedish, the singular pronoun “du” would be used instead the plural “ni”.

knowledge. For education, knowledge can be seen as the answer to the word “what” in the question “What did you learn in school today?” but is also connected to ideas about why the students should learn precisely this knowledge. For learning, knowledge is the fact or insight the individual learned. However, these descriptions are typified, and there is an ongoing debate on these various perspectives and definitions. Ways to use the concepts will be reviewed shortly. In the second part of this chapter, a transformation from learning to the posthuman co-concept of intelligibility will be performed.

So far in this chapter education has been situated in what I call edu-activity. A posthuman analysis was performed based on the intention and direction of education, but without really elaborating on the function of education. In order to introduce arguments gradually, one key component has until now been left out, namely learning. The problem with the current discourse on learning is that it emphasizes the role of the student and places too much responsibility for the educational process on the single subject (Biesta, 2006). The introductory question “What did you learn in school today?” is indeed directed towards a student. The focus on the individual learning is also connected to the student-centered approach to education, as discussed in Chapter 1. A central shift within educational theory and learning theory is the shift from a psychological/cognitive intra-personal subject to a socially constructed intersubjective subject, which is the current dominant view in theories of educational relations. A crucial aspect for creating a relational theory of education is the way learning is handled. Likewise, a crucial aspect of learning is the way knowledge is handled. Intersubjective views on learning describe it as the production of knowledge in interaction between human individuals, and hence do not rely on objective epistemology but on socially constructed epistemology.⁷⁵ As the theories emphasize the human social aspects, they do so in favor of nonhuman aspects. Roughly speaking: humans are considered active learners whereas nonhumans are viewed either as passive objects to learn about, or as objects that facilitate learning (Waltz, 2006; Sørensen, 2009).

For several years, feminist theory has contributed to a different understanding of learning, especial with respect to the ways in which epistemology creates socially

⁷⁵ See for example Osberg and Biesta’s (2007) “emergent epistemology”, or the theory of “situated learning” (Wenger, 1998; Lave & Wenger, 1991).

embedded practices and social learning (e.g. Stengel, 2004; Thayer-Bacon, 1997, 2004; Ford, 2007).⁷⁶ Now, questioning the human centrism, posthuman feminist theory is also starting to have an impact on learning theory, especially in early childhood education (Taylor, 2013; Lenz Taguchi, 2010). Appropriating a post-anthropocentric take on agency and learning creates learning where the children are co-participants entangled with the world they are learning from. However, as will be argued shortly, the learning subject continues to have a central position even in posthuman learning. Learning processes are described as co-participation and all aspects are agential, though, it is only children that are described as learners. The analysis in this section arrives at the conclusion that learning is not a sufficiently accurate concept for the intra-relational and post-anthropocentric theoretical framework that educational relationality is based on. Instead learning is transformed to the co-concept of *intelligibility*, which is a proposition for shifting focus away from educational subjects to the way in which relationality is central to making relata intelligible to each other. Intelligibility is a posthuman feminist ethical relational approach to learning that could open up the possibility of experiencing the entanglements of the intra-relational world and living in ethically responsible proximity.

First, Todd's (2003) view on an ethical "learning from the other" is discussed as a position that indeed is not subject-centered, but is instead other-centered, thus still focused on intersubjective entities rather than relationality. In contrast, Taylor's (2013) view on "learning with" is discussed as a post-anthropocentric version that considers learning as an activity aimed at the child. From these two inspiring attempts of ethical and relational versions of learning the concept of intelligibility is introduced based on discussions from Lenz Taguchi (2010) and Barad (2007).

Learning from

Working with the concept of learning brought to mind a memory from my early school years connected to the word game "Hangman"⁷⁷ that was frequently

⁷⁶ Several feminist theorists have dealt with epistemology, especially the postmodern/post-structuralist feminists. For an overview on feminism and epistemology, see Code (1991).

⁷⁷ The game Hangman is a word game played at the black board or using pencil and paper. The goal is to figure out what word the leader of the game is thinking about, guessing one letter at the time. If one guesses a letter that is not in the word, a line is drawn. After each mistake,

played in elementary school. The memory story starts one day when a new student was transferred to our class. Prior to his arrival, the teachers told us that the newcomer had recently walked in on his stepfather, who had hung himself. We were informed with the following facts: the story about the hanging, where he moved from, his name, and that the game Hangman was forbidden in this classroom due to the sensitivity of his recent trauma. The teachers took into account an ethical consideration based on sensitive knowledge. At the same time, despite his previous experiences, the student was not pampered. This kind of knowledge about the student can of course be helpful; however, it is also a necessary reminder of the impermanence of the educational situations.

I remember another episode connected to the Hangman story. We were outside playing at the break after a history lesson that included the topic of a major event in Swedish history called the Stockholm Bloodbath. What I remember is that, while playing outdoors during the break, this specific student brought up the subject of the bloodbath. I do not remember specifics, but I do remember that I realized that blood and death were not sensitive subjects for him, despite the fact that he had recently experienced the death of a family member. Instead, blood was as fascinating for him as it was for many kids that age. I was perplexed, probably because I still thought of him as vulnerable and traumatized by the death of his family member. In other words, I had been given some knowledge about him—knowledge that was never discussed or revised after the teacher mentioned it the first time. From this knowledge, he was categorized as vulnerable and placed in this category until the categorization was proven to be wrong. I had reduced his subjectivity to this one knowledge *about* him, instead of meeting him as a unique person and trying to learn something *from* him.

From an ethical perspective on education for social justice informed by Levinas, Todd (2003) criticizes the way education is thought of as a process of learning *about* the other. To learn *about* something or someone is to place it into a category, reducing the thing or person to the image that the learner is constructing. Learning *about* is not directly towards the other, but to the fixed representation of the other. In her critique, Todd proposes a shift in the use of

lines are added one by one to complete the image of a hill with a hanging man. One wins if one figures out the word before the man is hung.

prepositions. Edwards (2012) also critiques learning *about* which he connects to a representationalist view of knowledge. The learning object is seen as a distinct object that contains objective properties that the learner is separate from and learns about from a distance. Instead, Todd (2003) proposes to learn *from* the other in order to learn and respond ethically. Todd (2003) argues that ethics are not a question of knowledge; one does not have to know anything about the other in order to be ethical. It is actually the opposite condition: to become ethical, Todd (2003) argues with support from Levinas, is to let the other appear before one's knowledge about this other. Hence, learning about the other is not the primary goal for ethical educational relations. In the discussion on proximity in Chapter 5, a post-anthropocentric reading of Levinas was made which again may come in handy. In contrast to Levinas; usual focus on the human other, focus was instead on the entanglements one is part of, and how this creates an ethical response in proximity. Proximity is a concept borrowed from Levinas, but one which is developed with a Baradian touch in this thesis. Proximity was developed in contrast to separation, which has previously dominated the educational discourse on Levinas. Instead, I have followed Todd's (2015b) recent interest in the sensible and embodied aspects of Levinas' work, and have made proximity an ethical and material entanglement in educational relationality. As such, for educational relationality, "learning from" does not correspond with this way of thinking about proximity.

Todd's (2003) take on learning starts from an idea of two intersubjective separated parts. She thereby contributes to the decentering of the educational subject; however, in her focus on ethical responsibility for the human other, she places the other as a new center. For educational relationality, the distinct subjects are decentered, as they are something constructed out of the relation; they do not exist before it. When studying relationality instead, neither the "other", nor the self is in the center. Instead, the educational relationality itself is in focus and therefore a version of learning that has a deeper relationality is needed.

What other suggestions are there in educational research on posthuman readings of learning? That will be discussed next.

Learning with

There are plenty of discussions regarding various use of the prepositions connected to learning. Edwards (2012) for example argues that "Our accounts are *of* and *in* the world and not simply *about* it" (p. 532), though he does not

expand further on this. Instead, I will discuss Taylor's (2013) posthuman "learning with" as it is a well-established and well-motivated suggestion. This approach to learning is a good example of how learning is seen as a process for the student who learns through the intra-actions with the world s/he is part of and is co-creating.⁷⁸

Taylor's (2013) use of "learning with"⁷⁹ has a different starting point compared to Todd's (2003) "learning from". Taylor (2013) proposes an intra-relational, immanent, post-anthropocentric approach that focuses on learning with the entanglements one is involved with. For Taylor and Blaise (2014) it also means realizing that one is not the only agent acting intentionally in the world. Instead, each subject needs to discover the human and nonhuman relations s/he is part of "in our common worlds" (Taylor & Blaise, 2014, p. 386).

As stated in Part I, the main use of posthumanist theory in educational research has been in the fields of early childhood education and childhood studies. One aspect, which has been a matter of debate in this field, is the role of nature in childhood. Childhood often used to be explained as a natural state with a heritage from Rousseau (2003), but has also been connected to ideas about the natural unique individual. Lately, much of the research in this area has pointed to the cultural, social, and historical construction of the notion of childhood in contrast to the natural view (James & Prout, 1990; Denzin, 1977; Lee, 2001). However, some are also voicing the need for a shift from culture back to nature (Louv, 2008). Taylor (2011) argues that the aspect of nature needs to be reconceptualized in childhood studies. For a long time there has been a hyper-

⁷⁸ An alternative example of learning I could have discussed is the way ANT has contributed to a similar flattening approach to learning. Particularly interesting are Sørensen's (2009) analysis on the materiality of learning, and Fenwick and Edwards' (2010) definition of learning as "an effect of the networks of humans and nonhumans that identify certain practices as learning, which also entails a value judgement about learning something worthwhile" (p. 41). Just like "learning with", these views also see learning as a growth in knowledge, that is, an effect of knowledge processes. Taylor and Blaise (2014) are also inspired by ANT; they draw Latour's (2004a) term "learning to be affected" which is a process of making one's body realize that it is part of a larger body-world. They discuss this intra-relational aspect of learning more than the growth in knowledge; this is the reason it is more appropriate for the argument presented in this chapter.

⁷⁹ Taylor (2013) occasionally uses the concept "learning from" as a synonym for "learning with", which is not in the way Todd (2003) uses it.

separation of the human from the rest of the world, due to the hegemony of Western humanist traditions (Taylor & Blaise, 2014). Nature is argued as “existing ‘out there’—either waiting to be known by, and improved upon, by us humans (as in development and progress discourse), or alternatively, needing protection by and from us (as in environmental protection discourses)” (Taylor & Blaise, 2014). At the same time, culture is seen as something exclusively human that is granted higher value than nature. Taylor (2011) argues that the discourse of nature is itself under-theorized and that the will to separate nature as distinctly separate from culture in a dualistic way is not a productive solution. Instead, she argues that Haraway’s way of studying nature and culture as inseparable—as *natureculture*—could be beneficial for childhood studies.⁸⁰ When taking into account aspects other than the sociocultural human aspect and studying childhood as a becoming with nature, a richer flora of childhood appears. To explore natureculture does not mean to reduce nature to an instrument for human needs, but to see phenomena—for example childhood—as natureculture entanglements. What is of interest is that the posthuman analysis does not take sides in the dualism of nature and culture but considers them entangled. In contrast to the discourse of learning in a sociocultural space, childhood is instead located to a posthuman landscape (Haraway, 2004) where children are not learning about nature, but rather learning to live *with* it (Taylor, Blaise & Giugni, 2013).

A second inspiration for Taylor’s (2013) “learning with” is indigenous ideas. Several researchers from the Common World Childhood Research Collective, which Taylor is a part of, have experience teaching indigenous children in Australia (Taylor, 2013; Somerville, 2014; Martin, 2007). Taylor notices that these children are not brought up to be independent individuals, which is often the Western or European ideal. Instead, the children are raised as a part of an entanglement where the land, family, animals, plants, and other aspects are entangled. Martin (2007) shows how indigenous children are taught that growing up is a mutual bond of self and nature, hence the relatedness is more in

⁸⁰ Taylor (2011) also refers to the field of geography and human geography as they contain plenty of ideas about the blurring of the human/nature line, partly because of their position between the natural and social sciences (Taylor, 2011). In this field Castree (2001) argues that socionature is not possible to disentangle. In this analysis, I will mainly stick to Haraway since her theories are already established in the theoretical framework of the thesis.

focus than the separateness or individuality.⁸¹ Inspired by what she learned from indigenous ideas and other sources, Taylor's (2013) position is "that *twenty-first-century children need relational and collective dispositions*, not individualistic ones, to equip them to live well within the kind of world that they have inherited" (p. 117). Here, Taylor points out something of great importance, namely that people with worldviews that are individualistic or humanistic have a tendency to think and act from distinct categories instead of viewing the world as intra-relational. Hence, changing the approach also changes actions. This leaves Western society with a view of childhood and education based on atomistic entities with inherent qualities for an intra-relational non-representational view on knowledge and the world.

This world is a messy changing entanglement and the student is part of it in different ways. Being a student involves being entangled with aspects such as cultural history, biopolitics, animals, maps, capitalism, and water. A humanistic objective view on knowledge demands a distinct separation between subject and world in order to guarantee objectivity. For "learning with", knowledge is not based on separation but on a responsible and entangled being in the world. This is what Barad (2007) would call ethico-onto-epistemology, which will be developed further in relation to the discussion on intelligibility below. Following Taylor (2013), it is of less interest what or whom the child/student is having a learning relation with. It is not one single relationship that is in focus, but the intra-relationality the learner is part of.

In the section on "learning from" I shared a memory story about the game Hangman and how I learned about the newcomer in our class. We were discussing Stockholm Bloodbath during the break while we were outside playing. Our classroom was close to the edge of a forest with large pine trees. This image of kids running in the forest playing with sticks and toys is what I returned to while reading Taylor's examples. They are located in Australia with eucalyptus trees instead of pine trees and with life-threatening snakes in the bushes instead of simply annoying ants. We will take a closer look at one of Taylor's examples next.

⁸¹ This non-separateness of child/world also includes an entanglement of ontology and epistemology. For a lengthier discussion on non-separateness from an African perspective, see Verran (2001). For a more extensive discussion on indigenous thought, see Cajete (2000).

One way of reconceptualizing nature is to give an account of more-than-human stories in order to decenter the child into a broader world. In interesting deconstructions of their own stories, Taylor and Blaise (2014) discuss their own roles in the production of more-than-human encounters. In the story told by Taylor, she is part of an Australian early childhood group as they visit the eucalyptus forests. Taylor shares her irritation with two girls who were playing their favorite pet dog game: “*Why can’t they stay focused on the real animals that are all around them in the bush?*” (Taylor & Blaise, 2014, p. 383). And some boys who were using Eucalyptus sticks as guns pretending to shoot at the wild kangaroos were being discouraged with the argument “*Not exactly the kind of child-animal relations we’re hoping to foster!*” (Taylor & Blaise, 2014, p. 387). Simultaneously, she is worried about the poisonous snakes that she knows are hiding somewhere, and her gaze is anxiously scanning the forest floor. I find this story intriguing since it involves several different aspects: natureculture is multifaceted. It can be dangerous, fascinating, victimizing, or simply a platform for other interactions. Taylor struggles with letting the children explore nature on their own (they do have snake-protecting shoes), but at the same time wanting to steer the kind of relation they are to develop with nature. Even if she is well aware of the blurred lines of nature/culture dualism, at the same time she is upholding the distinction between appropriate indoor and outdoor activity, as in the example of the dog game. In the example with the kangaroo-shooting children, it is obvious that not just any kind of relation to nature is desirable, but a caring ethical view of nature. Taylor wishes to foster the children in experiencing their part of the ecological system, and not developing into human beings who master nature to use it for their own benefit.

Can “learning with” then be a concept for educational relationality to adopt? Even if it is both intra-relational and post-anthropocentric, it contains another starting point that does not fit educational relationality, namely the focus on the child. With Taylor’s ambition to construct a learning theory for early childhood education, she has the learning child as a starting point with regard to both the direction and the way in which the intention of education is framed. The reason for the child-centrism could be that Taylor developed her ideas primarily for the area of childhood education—which has a strong tradition of placing the child at the center—and not specifically as a theory for educational relations. Surely, the child is neither an individualistic, separate entity nor an intersubjective child, as in other views on children. Learning implies a direction towards the learner, just as teaching implies a direction away from the teacher. In other words, it is only the child that learns in the world. What about learning for

other aspects of the world? Learning is connected specifically to the student-relata, disregarding learning for other relata. Hence, “learning with” is still both subject-centric and anthropocentric. Learning *with* in Taylor’s (2013) sense is not applicable to educational relationality. Rather, what Taylor (2013) proposes is not first and foremost a post-anthropocentric approach to learning, but to living. All relata are living with each other, but only the human relata are learning.

What does it mean for anything else to learn, or for a learning relationality? The direction of learning towards the educational subject. Here, the child must be rethought for educational relationality. For now I will settle for concluding that the shift from learning *from* to learning *with* is an important shift in order to critique the anthropocentric intersubjective view of relations as based on separation. With this attempt to propose a posthuman version of learning I will hereby leave the concept of learning due to its limitations. Where to go next? In the next section, the transformation of learning to intelligibility will be discussed.

Intelligibility

In order to handle post-anthropocentrism and intra-relationality in relation to learning, I will in this section introduce the co-concept of *intelligibility*. Before that, I will return to my early school years with another memory story.

This episode happened some time during one of my first years of school. One day we went on a field trip together with a guide from the local history society visiting some places close to our school. In particular, I recall the stop we made at a stream in order to learn about what are known as giants’ kettles. The rock bottom of the stream had some holes; some looked as if they were drilled straight down. Our guide told us that the holes appear when a stone stays in a small cavity and is spun around by the movement of the stream. When this spinning of the stone continues over many years, it eventually functions like a drill and a cavity is created. When big rocks spin in big cavities, a giant’s cavity appears. However, in our stream the cavities were not giant sized, but more like a few decimeters in diameter. The guide even showed us that he had brought a cubic cobblestone ten years earlier and placed it in one of the cavities. He showed us the stone and to our surprise it was no longer sharply cubic, but had round edges. At the time, I was not even ten years old and I realized this rock had lain in the cavity longer than my lifetime. Perhaps, our guide said, in

another ten years the rock will be completely round and the cavity will be deeper.

One major dilemma with the concept of learning is that it has evolved from the discipline of psychology, therefore, with its focus on a single human subject, learning has connections to the way psychology places the human subject at the center (Edwards, 2010). Another consequence of the fact that learning is primarily about cognitive abilities is that it often excludes embodiment and materiality (Todd, 2015b). The psychological perspective is based upon the idea of a distinct human body controlled by a cognitive brain. However, Lenz Taguchi (2012a) argues that human beings are not distinct beings:

The human being and the humane do not arise in a vacuum separated from the world; human beings can simply not exist without an infinite amount of materiality, which their existence depends on. The human being consists of a diversity of linked and jointed cells, molecules, hormones, tissues, fluids etc., whose existences depend on materialities (water and nurture). Before these materialities are being taken up as active parts of the network of the body, they exist “outside” the porous barriers of the body. (Lenz Taguchi, 2012a, p. 10, my translation)

In the description above, Lenz Taguchi shows how the human can be seen as a material entanglement. The human body is not a separate entity, but is in a state of constant reshaping and becoming with the world, just as the world is reshaping with respect to the body. When I breathe in, the world outside is affected through the loss of this breath causing the air to move and reshape itself. The point is to notice the porosity of the material border between the human and the world. This porosity, and the view of the human as material is of highest interest when considering how to think about the world. Porosity is decentering the psychology- or cognitive-centered learning subject and creating the possibility of viewing the relationality as the place where learning happens. And this is where intelligibility is introduced:

We are not put into the world in order to put ourselves above it, to go beyond it or transcend it; rather, we are made from the same substances as the rest of the world, we are part of it, and we are simply *making ourselves intelligible to one another* in a process of mutual and inter-dependent becoming. In other words, we cannot produce knowledge and learn about the world without being totally dependent on it. (Lenz Taguchi, 2010, p. 42, my emphasis)

In this quote, intelligibility is introduced as a process of mutual and interdependent becoming, what this thesis would call intra-relationality or impermanence. Edwards (2010) points out that the concept of learning usually means the growth in knowledge for a learner. Lenz Taguchi (2010) shows that it is also possible to view “learning as a state of transformation” (p. 176). When the state of transformation is happening in relationality rather than in subjects, this is what intelligibility means.

In *The Intelligibility of Nature*, science historian Peter Dear (2006) studies how Western science has in various ways been trying to make sense of the world. He explains that there is an unresolved tension between two approaches to science, instrumentality and natural philosophy. Dear (2006) argues that this tension “has yielded views of the universe that are dependent on particular human conceptions of what makes sense” (p. 14). What a post-anthropocentric conception of making sense would mean is however not something Dear (2006) develops further in his work. Dear’s (2006) substantial contribution to seeing the history of (Western) science as intelligibility is an important inspiration, though it is in this work read diffractively through a posthuman lens. For instance, Dear (2006) states, “Assertions of intelligibility can be understood only in the particular cultural settings that produce them” (p. 14). Reading this quote through Haraway (2008), intelligibility is always situated, not only in a (human) cultural setting, but also in a natureculture setting.

Barad (2007) is consistently using intelligibility in a post-anthropocentric way. However, it must be clarified that intelligibility does not have to do with a human cognitive brain, despite its etymological connection to intelligence. Barad (2007) explains:

In traditional humanist accounts, intelligibility requires an intellectual agent (that to which something is intelligible), and intellection is framed as a specifically human capacity... [I]ntelligibility is an ontological performance of the world in its ongoing articulation. It is not a human-dependent characteristic but a feature of the world in its differential becoming. The world articulates itself differently. (p. 149)

Here we can see various parts of the thesis coming together, for instance the critique of humanism, a post-anthropocentric approach, ethico-onto-epistemology, and impermanence. The main point in terms of intelligibility is that this “posthuman learning” is primarily located in relationality, not in relation such as human educational subject. Knowledge is not meant to represent an

already existing world; rather, to create knowledge is to simultaneously create the world. Knowledge is the first of two characteristics, which will be used to develop intelligibility as a co-concept for educational relationality. The second characteristic has to do with Lenz Taguchi's discussion in the earlier quote on the human and porosity. Since intelligibility is post-anthropocentric and intra-relational it will deal with materiality.

Intelligibility and knowledge

If intelligibility is a process in relationality, in what way can knowledge be viewed? Knowledge has always been at the heart of the question of learning and education:

Students in education learn much *about* the world through representation, but what would a curriculum of *responsible entangling* within the world, of experimentation and responding look like? (...) Perhaps we might be radical and suggest that the purpose of education could be decentered gathering and experimentation rather than the subject centering practices of learning about objects and facts. (Edwards, 2012, p. 533)

The discussion of intelligibility is decentering the subject position in the learning discourse, but in what way is it rethinking the way knowledge is made? Or perhaps the question could be posed the other way around: given the epistemological positions of this thesis' theoretical framework, what are the consequences for intelligibility? Let us first clarify what a representationalist view on education means before arriving in the alternative. As stated at the beginning of this chapter, education is firmly connected to the purpose of a student acquiring knowledge. In their research collaboration Biesta and Osberg (and Cilliers) discuss representational epistemology in education (Biesta & Osberg, 2007; Osberg & Biesta, 2007; Osberg, Biesta & Cilliers, 2008; Osberg & Biesta, 2008). In short, they argue that historically, education went through an epistemological shift when children were put in school. Before, they learned from their parents presenting the world to them. In school, they were no longer exposed to the real world, and therefore knowledge became something that was represented to them, with the teacher acting as link a between the world and the students (Biesta & Osberg, 2007). The knowledge represents the physical world existing outside the school transmitted from the teacher to the student. However, it is argued that the teacher needs to limit the complex real world into convenient representations in order for the students to be able to receive these representations. One such educational example of constructing simplified

versions of the real world is Comenius, who claimed that the only way children could comprehend the complex world was through clarified and distorted instructional materials. Comenius' pedagogy is a typical representationalist pedagogy since it "*insists* on presenting properly ordered images of worldly objects (i.e. representations of the world) *rather than pointing to the objects themselves*" (Biesta & Osberg, 2007, 25).

This is a move away from representational views on knowledge, a move that several educational theorists have also worked with. To start with, Biesta and Osberg (2007) propose an intersubjective understanding of knowledge in education introducing an "emergent epistemology". With a similarly performative approach, Ford (2007) introduces the concepts of "epistemic public" and "epistemic coalition work" based on various feminist theorists. Lang (2011) follows Ford's (2007) feminist approach to epistemology and discusses epistemologies of situated knowledges, informed by Haraway (1988). Another example of a feminist relational epistemology in education is Stengel's (2004) view of knowledge as a response-able relation. All of the propositions mentioned above are focused on the creation of knowledge as an interhuman affair excluding nonhumans and focusing on educational subjects instead of relationality.

Given this background, the question for intelligibility is to figure out what a posthuman alternative to representational thinking could look like for educational relationality. Within posthuman philosophy, it is common to be critical of representational views of knowledge. Instead of seeing the world as containing separate entities creating knowledge of one existing reality, a common idea is instead to start from an original entanglement of everything and the idea that knowledge consists of temporary and situated realities of a multidimensional constantly changing world.⁸²

In what way then is intelligibility dealing with knowledge? Intelligibility is not the process of a *relata*, but a transformative activity in intra-relationality. This activity is ethico-onto-epistemological; meaning that it is what Edwards (2012) called a "*responsible entangling* within the world" (p. 533). As we saw in the

⁸² One posthuman educational example is presented by ANT-influenced Sørensen (2009), who proposes the concept of *liquid knowledge* as processual mutations as a critique of representational knowledge.

introduction of this section, for Todd (2003), learning is ethical, and now, drawing on intelligibility and proximity, this ethically responsible aspect of learning is continued. Intelligibility is not a process where a human subject represents knowledge about an object. In this intra-relational version, an ethical intelligibility means to take the impermanent intra-relationality into account, realizing that it is a temporarily situated knowledge that is learned.

Each object of learning is in fact a bundle of complex, impermanent movements. Or to quote Lenz Taguchi (2010) once again: “to view ourselves in a constant and mutual state of responsibility for what happens in the multiple intra-actions emerging in the learning event, as we affect and are being affected by everything else” (p. 176). Here, I would like to return to Haraway’s notion of natureculture, as discussed in the section on “learning with”. Disrupting the idea of learning as a sociocultural learning, and instead introducing natureculture intelligibility is a suggestion for a post-anthropocentric learning. Intelligibility also disrupts the centric idea of what a learning subject is, sidestepping the didactical triangle of student/teacher/content—instead, intelligibility is firstly relationality and secondly *relata*. In other words: “the learner and the world cannot be separated” (Lenz Taguchi, 2010, p. 47).⁸³ Instead, the relationality carries its own intention, direction, and intelligibility.

When intelligibility is happening it is not a growth in knowledge for a learner, but a responsible state of transformation of both knowledge and reality. How then is the ethico-onto-epistemology connected to materiality? That will be approached next.

Intelligibility and materiality

When arguing against representationalist thinking, Barad (2003) proposes a shift “from questions of correspondence between description and reality (e.g., so do they mirror nature or culture?) to matters of practices/doings/actions” (p. 802). But these actions or practices are not only human affairs, but also a question for materiality. Barad (2007) argues:

⁸³ Johansson’s (2015) Deleuzian analysis on education also states that it is no longer possible to separate the learner from what is learned.

This account refuses the representationalist fixation on words and things and the problematic of the nature of their relationship, advocating instead a *relationality between specific material (re)configurings of the world through which boundaries, properties, and meaning are differentially enacted* (i.e., discursive practices, in my posthumanist sense) *and specific material phenomena* (i.e., differentiating patterns of mattering). (p. 139)

Meaning in our culture is usually connected to the human idea of making sense of the world, but Barad argues it should be possible to create a post-anthropocentric view of the concept. All intra-actions construct meaning and/or knowledge, just not in the way humans do. Using the concept material-discursive, Barad (2007) emphasizes that meaning is not only created discursively through language, but also that materiality is constantly making itself intelligible. Lenz Taguchi (2010) argues that this way of including materialism into the epistemological equation is something that constructivist, discursive and post-structuralist approaches fail to do, and she credits the materialist feminists for making this point clear.

In order to understand the characteristics of intelligibility we must stop considering human beings as only cognitive learning beings and instead see them as material beings (Lenz Taguchi, 2010). The evolutionary and biological development of the human body is a matter of materiality, thus the human materiality is agential. Just as human materiality is agential, so is nonhuman materiality. It acts upon human materiality: seeing a cloud, tasting a squash, receiving oxygen by inhaling, hearing a door creak, etc. This is a reciprocal experience since human materiality also acts upon nonhuman materiality: a grass straw experiences being bent, a crow sees a human, a squash is dissolved by stomach acids, etc. Hence, there is no actual difference in the way we consider agency for various kinds of materiality. The difference lies in what the different intra-actions consist of. Intelligibility that involves human *relata* differs from intelligibility involving bat *relata*. In turn, bat *relata*, as part of intelligibility, is distinctly different than rock *relata*. But different bat *relata* also differs from each other. As stated repeatedly in this thesis, a *relata* is not the same as a categorizable entity such as an entire human, an entire bat, or an entire rock. Since each *relata* is always only a part of a relation it is always unique and cannot be reduced to any other similar *relata*. Since intelligibility is materiality, the human/nonhuman distinction is not valid here. Material *relata* are constantly making themselves intelligible to each other, independent of whether they are human or nonhuman *relata*.

Barad (2003) argues that the current renewed interest in the question of materiality concerns a different approach to matter:

Matter is not little bits of nature, or a blank slate, surface, or site passively awaiting signification; nor is it an uncontested ground for scientific, feminist, or Marxist theories. Matter is not a support, location, referent, or source of sustainability for discourse. Matter is not immutable or passive. It does not require the mark of an external force like culture or history to complete it. Matter is always already an ongoing historicity. (p. 821)

Intelligibility is clearly a function of materiality as it is agential. One of Barad's main points is the inseparability of matter and meaning, a question that Lenz Taguchi (2010) and others have brought to the area of education. Edwards (2012) points out that educational theory has taken the representationalist separation between matter and meaning for granted. Viewing materiality as a part of knowledge production does not consist of learning about "objects" with properties, but learning about them as entanglements that "gather both matter and meaning in their enactments" (Edwards, 2012, p. 530). Therefore, Edwards (2012) argues that educational theory needs to approach theory differently in order to unlearn habitual representationalist thinking. In this chapter, the introduction to intelligibility is an attempt to unlearn such thinking.

Studying educational relationality and edu-activities as intelligibility rather than learning is in keeping with the posthuman theoretical framework of the thesis. It creates the possibility of studying visits to the small giant's cavities at the local stream not only in terms of the students' learning from/with nature or from the guide, but letting intelligibility as relationality to appear even outside human *relata*.

Let us return to the example of the visit to the stream with the giant cavities. Since human beings interpret time from the perspective of their own lives and the way they experience passing time, humans have a tendency to see stability instead of absolute movement. In posthuman discussions it is often animals or other living things that are discussed, since they are easier to relate to. A living thing is, after all, living just as humans do. Seeing relationality and movement in nonliving things is possible when we decenter the idea of movement as appearing in front of the human eye. The rock in the giant's cavity is relationality, where the parts are *relata*. The force of the water is making itself intelligible to the rock, whose surface makes itself intelligible to the rock cavity. Small parts of the rock and the rock bottom are slowly peeled off and made

intelligible by the swirling stream. The rock was making itself intelligible in my small hands as I was feeling its rounded corners and weight, and my hands were making themselves intelligible to the water dripping from the rock. Our class visit was also making itself intelligible to the senses of a frog; the frog made the water intelligible to its movements swimming to the other side of the stream.

Intelligibility is the transforming intra-relationality, independent of it happening quickly or slowly. It is an absolute movement, relentlessly transforming with the intention of its forces and capabilities being directed towards the result that appeared. Turning to this memory story, a flattening approach is hereby proposed for transformations in materiality. That is, intelligibility—formerly known as learning.

In other words

The following chart summarizes in a simplified way the transformations caused by the diffractive readings in Chapter 6.

The location of education in the gap between the student and the teacher	→ education located in the intra-relational activities, introducing <i>edu-activity</i>
Anthropocentric learning with a direction towards the student	→ learning as post-anthropocentric and intra-relational, introducing <i>intelligibility</i>

PART III: Examples

Introduction

So far in this thesis, the analysis and development of the theory of educational relationality has been mainly conceptual. Part III takes a somewhat different approach, namely working with two examples of educational relationality. Part II worked with theories of educational relations, and read them diffractively through posthuman philosophy. Through this analysis, the theory of educational relationality was developed. In the following section, a brief summary of how educational relationality has developed so far, and a discussion of the co-concepts⁸⁴ developed along with it will be presented.

Educational relationality is a theory placing the intra-relationality of education before the relata (subjects) of education. I discuss the concept of “becoming”, proposing an intra-relational view on the becoming of the world, resulting in the co-concept *impermanence*. Secondly, the idea of uniqueness in education is discussed. From an intra-relational approach, being unique is an inherent aspect of impermanence, hence the creation of the co-concept *uniqueness-as-relationality*. Further, as a critique against educational relations as consisting of separated subjects, an ethical and sensible approach to relationality is proposed, introducing *proximity* as a co-concept. One central project of this thesis is to work past Biesta’s idea of locating education in the gap between the teacher and the student. Instead, educational relationality suggests an impermanent location in intra-relational educational activities, introducing the co-concept *edu-activity*. The most central edu-activity though is learning, which has an exclusive position in educational theory. A posthuman alternative to learning, the co-concept *intelligibility*, is proposed for educational relationality.

⁸⁴ For further discussion of the co-concepts, see Chapter 4, and for the development of the co-concepts, see Chapters 5 and 6.

In Part III, two nonhuman educational examples are used to exemplify the theory of educational relationality. The two examples are animals and technology, more specifically the use of *literacy dogs* in animal-assisted literacy projects and the use of *augmented reality* (AR) technology in education. However, following the intra-relational approach of the diffractive methodology, the examples are not passive objects onto which a theory is implemented, but also become active co-constructors of the theory through the analysis. The purpose is to perform a diffractive reading of the two examples through educational relationality and posthuman philosophy. The analysis aims first to exemplify educational relationality, and second to use insights from these analyses for further development of the theory of educational relationality. The two examples are discussed in an intra-relational manner, meaning that it is not the dog or the technology as a single relata that is of interest, but rather the intra-relationality they are entangled in. Each chapter provides a brief introduction in which the example is contextualized. After that, the example is read diffractively through posthuman philosophy, the theory of educational relationality, and its co-concepts.

Chapter 7 discusses the use of *literacy dogs* in animal assisted literacy projects. So far, there are no studies on the use of literacy dogs using a posthumanist approach, nor any studies with a philosophical ambition. Therefore, I will make use of the theory of educational relationality, along with a closer diffractive reading of this example and Haraway's philosophy dealing with companion species. The literacy dog practice is analyzed with the co-concept edu-activity. The literacy dog is viewed as a natureculture phenomenon that decenters the idea of what it means to be an educational subject/relata. The decentering process contributes to rethinking the body's release of oxytocin and other bodily functions as intra-relational materiality. The chapter also uses proximity to develop a way to understand communication across species.

Chapter 8 deals with the use of *augmented reality (AR) technology* in education. While viewing the sky with an astronomy learning app using the camera, additional virtual information is added to the image, creating an augmented reality. The common human-technology dualism is shifted to a human-technology-world triptate, which is then shifted to viewing the use of AR in education based on seamlessness. The analysis discusses AR as a multi-directional complex entanglement. AR is also analyzed as intelligibility and what this means for educational relationality.

Finally, this Part—and the thesis—ends with a concluding chapter called “Towards new beginnings”. Accompanied by a few memory stories, this chapter discusses a few examples as new beginnings or as points of departure for others to continue to engage. The metaphor “cutting through water” is also discussed in terms of educational relationality.



CHAPTER 7. Literacy Dogs

Dogs are about the inescapable, contradictory story of relationships—co-constitutive relationships in which none of the partners pre-exist the relating, and the relating is never done once and for all.

—Donna Haraway

Introduction

Can man's best friend be a child's best teacher? In this chapter, attention is focused on the relations humans have with dogs as an example of educational relationality, since this species could be the one that is most entangled with humans.⁸⁵ Dogs are the only animals that were domesticated when humans still lived in hunter-gatherer societies before the agricultural revolution. Today, the dog is still one of humans' closest companions and serves as a source of company and agility training, as well as performing some service tasks for humans, such as acting as a guide dog or a police dog. In this chapter, I will specifically focus on the use of dogs in animal-assisted literacy projects. The idea of these projects is that children practice reading aloud to these so-called *literacy dogs*. It is not the literacy project itself that is of interest here; hence, I will not pursue any detailed discussions of the dogs' relevance to the field of literacy.⁸⁶ Neither will I discuss

⁸⁵ On a level that is not visible to the human eye, humans live in symbiosis with an enormous range of bacteria, fungi, viruses and other microorganisms.

⁸⁶ The research on animal-assisted literacy projects mainly consists of qualitative studies that discuss the positive effects of the use of literacy dogs. According to Friesen (2009), there are "numerous anecdotal reports" (p. 106) about the positive effects of literacy dogs, as well as

how to pursue this kind of project, nor the eventual risks or ethical dilemmas it might bring.⁸⁷ Rather, the use of literacy dogs is presented as a philosophical example of the theory of educational relationality. The material in this chapter consists of texts from a few different areas. The primary material is the available academic literature on literacy dogs. Secondly, for the posthuman philosophy, Haraway's texts on companion species are used. The diffractive analysis is made while the material on literacy dogs is read through the posthuman philosophy of Haraway, with the purpose of exemplifying the theory of educational relationality and some of its co-concepts. While viewing the practice of literacy dogs as an example of educational relationality, it will also contribute to the further development of this theory and its co-concepts.

This chapter follows the following structure. First, the use of animals and dogs in educational and other practices is discussed. A closer account of the use of literacy dogs will also be presented. In order to strengthen the posthuman approach when talking about dogs, Haraway's notion of companion species will be discussed. The analysis consists of discussions of educational roles, relata, and relationality, followed by an analysis of literacy dogs as a natureculture education activity in proximity. Finally, the discussion targets embodied aspects of literacy dogs.

Animals in education

For a long time, dogs and other animals have been used in social institutions such as health care and psychiatric practices. Florence Nightingale, famous for founding modern nursing, advised that animals could be good company for the sick, especially the chronically ill and patients at a psychiatric unit (Jalongo, Astorino & Bomboy, 2004). Patting an animal gives the body satisfaction, as the calming hormone oxytocin is released and nervousness is diminished. In health care and psychiatric clinics, it is especially for therapeutic purposes that dogs

“small-scale reports” (p. 106) written on the subject. However, no research has been carried out in a substantial more structured way.

⁸⁷ For aspects such as hygiene, allergies, and how to prepare for animal-assisted literacy projects in schools, see Jalongo, Astorino, and Bomboy (2004) and Jalongo (2005).

play a significant role.⁸⁸ Today it is well known that dogs function as a social lubricant for clients in animal-assisted therapy (AAT). AAT is based upon two principles: “children’s natural tendency to open up in the presence of animals and the stress-moderating effect of an animal’s calm presence” (Jalongo, Astorino, & Bomboy, 2004). From this perspective, animals in schools are used mainly when a certain student has emotional problems, or in special needs groups for children with psychological issues (Anderson, 2007; Anderson, & Olson, 2006). Hence, the main focus of animals in educational settings is also based on a therapeutic discourse. The problem with this psychological framing is that it is a problem solver, and animals are used as part of a therapeutic program. Hence, it does not start from a normal circumstance, but from the view of a problem with certain children⁸⁹.

Another motive for the use of animals in schools is for children to learn to take care of animals, which is indeed also connected to the therapeutic aspect (Melson, 2001). The argument is that the children will in this way be more prepared to also take care of other human beings. Montessori (1988), who emphasizes learning from experience, argues for the care of animals as an activity along with activities such as gardening and domestic work. For Montessori (1988) the role of nature is important, and therefore the care of animals is rather a way of staying in contact with nature. Here, the practice of classroom pets comes in; however interaction with animals can also be programmed for therapeutic purposes. This aspect is the view of animals as something that is taken care of. One could easily say that this caring is anthropocentric due to the belief that the human is controlling the animal. And its end result is also argued to be children with more qualified relations to other human beings (Jalongo, Robbins, & Paterno, 2004).

Melson (2001) argues that animals play important roles in children’s lives and development. Children who interact with animals do so based on four categories of engagement: interactive, nurturing, learning, and social glue (Melson, 2001). With respect to learning, for instance, children learn better watching a real

⁸⁸ As early as the 1960s, child psychologist Boris Levinson used dogs as a kind of social lubricant when dealing with child patients in particular (Levinson, 1997).

⁸⁹ Compare this with the arguments of Ecclestone and Hayes (2009) concerning the rise of therapeutic methods and perspectives in education.

spider than a movie of a spider. One study suggests that children developed their reasoning and knowledge about biology simply through keeping a goldfish at home (Inagaki, 1990).

Posthuman studies on animals and education

There are some examples of educational work that discuss animals, but which does not fall into the therapeutic interaction or the caring category. Pedersen (2010a) draws from the theoretical field of critical animal studies in her work on animals in schools. In a couple of case studies, she analyses different human-animal relations in educational settings. The critical animal studies approach she uses explores questions of exploitation and includes animals in the wider concept of emancipation. The students and teachers deal with issues of hunting, fur coats, vegetarianism, livestock, zoos, and animal caretaking. Pedersen (2010a) argues that animals are at the same time instruments and ends for learning. Often, the literacy dogs are used in an instrumental way, rarely as an end for learning. However, the analysis below does not primarily focus on this issue, but on the relationality of the dog-human entanglement.

In the field of early childhood education, Blaise explores how dogs can be used in order to develop thoughts on childhood (Blaise, 2013; Taylor & Blaise, 2014). It is not a matter of comparing children with dogs, but rather challenging established anthropocentric ideas. Blaise uses Haraway's (2008) notion of natureculture and approaches the pet-dog-child figures as material-semiotic entanglements. Situating the research in her own positioning in relation to Hong Kong dog parks, she traces colonial flows, posthuman practices, gender-expressive dogs, and status symbols. She writes that when decentering the human being and the human child in particular, new stories can appear. It is using a similar approach, but with a focus on educational relationality, that this chapter aims to investigate the example of literacy dogs, which will be presented next.

Literacy dogs

In the last ten years, a growing interest in animal-assisted literacy projects, most often using dogs, has developed in the US, Canada, and a number of other countries. What started as a one-time project in Salt Lake City in 1999 had fourteen years later grown to a network of approximately 3000 volunteer teams all over North America (Massengill Shaw, 2013). Currently the movement is spreading to Scandinavia with one project financed by a large grant and a couple

non-funded projects (Cervin, 2013). The general idea is that the child meets a so-called literacy dog and the dog's owner/handler with the task of reading an age-appropriate book aloud to the dog. The handler might or might not interfere with the reading. The dog is trained to lie calmly in the child's lap, or at her/his feet, and the child can also pat the dog. The animal-assisted literacy projects are either performed in a public library setting where children can visit the dogs spontaneously while visiting the library, or in a more formalized schooling context (Massengill Shaw, 2013). The main arguments for using dogs in literacy practice is to create a safe and affirming environment for children to read aloud without pressure or the risk of correction by a teacher or peer. The presence of the dogs also has a calming effect on the children.

The literacy dogs are already trained therapy dogs, or have undergone some other kind of training. Since the literacy projects do not have an articulated therapeutic purpose—though, sometimes they are used for combined purposes—their presence is not referred to as animal-assisted therapy, but rather the more general term animal-assisted activity (AAA) is used. Friesen (2010, 2009) promotes the concept of *Animal-Assisted Learning* (AAL) for a broader use of animals for educational purposes. But in what way can the use of literacy dogs be understood as educational relationality? In order to explore that we will next explore how dogs can be understood with a posthuman approach.

Companion species

Often when the history of the dog is presented, it is told from the human's perspective.⁹⁰ It is said that man developed the dog as a companion through domestication of the wolf, and that this domestication can be seen as a cultural process for human beings, and a biological genetic breeding process for the dogs. However, this idea is based on the anthropocentric principle of dogs as tools to fulfill the needs of human beings, which in turn is based on the idea of human agency and supremacy. One researcher contesting this view is Haraway, who

⁹⁰ This section is informed by a variety of texts on wolf/dog evolution, for instance Germonpré et al. (2015), Hare and Woods (2013), Skoglund et al. (2015), Morey (2010), Horowitz (2009), Shipman (2010), and Serpell (1995).

emphasizes the co-evolution of dogs and humans in *The Companion Species Manifesto* (2003)⁹¹.

Dogs and wolves share a common ancestor, one that probably looked more like today's wolves. From this wolf, dogs were developed in co-evolution with human beings. When this happened is still a matter of debate, but a recent genome study argues that the process began 27, 000 and 40, 000 years ago (Skoglund et al., 2015). The divide was not a singular event but a slow evolutionary process of the wolves and humans becoming more and more accustomed to each other. The leading hypothesis of the co-evolution of man and wolf/dog is that wolves first discovered that there were scraps left behind the human hunter/gatherer camps for the wolves to eat. The humans who were best at serving the wolves received their companionship and their protection. The wolves that best served as human companions received more and better food. Eventually, both species began to benefit from collaborating while hunting, by keeping warm, staying safe, and the like. The earth's last ice age began 115,000 years ago, reaching its maximal expansion about 20,000 years ago. One hypothesis is that during this time the wolves/dogs that stayed close to the human camps were more likely to survive than the wilder wolves. Hence, the natural selection of more the social wolves/dogs began even before humans started selecting which dogs should be used for breeding. Once the dogs started living with the humans, they began to have various functions which were further refined through breeding.

Haraway (2003) argues that there are two aspects at stake in the question of human/dog co-evolution and the role of dogs as companion species. First, the distinction between nature and culture, and secondly, closely connected to this, the question of who or what qualifies as an agent. As argued earlier in this work, agency is seen from the post-anthropocentric horizon of a flat ontology where it is not a property someone has, but something relational. When agency is no longer placed in the rationally planned breeding of dogs, but in the intra-relational co-evolution of dogs and humans, a different story evolves. Surely, humans have had an important role in the dog history due to planned breeding but agency involves so much more than rational intentions, as discussed in

⁹¹ This is not Haraway's first manifesto. As a science and technology studies researcher she wrote the famous *Cyborg Manifesto* (1991), in which she uses the figure of the cyborg in order to explore the human-technology entanglement.

Chapter 6. The posthuman analysis helps us understand the complex origin of the common history of dogs and humans.

The co-evolution of humans and dogs is one of many stories of natureculture entanglements. As a matter of fact, Haraway (2003) argues, “Co-constitutive companion species and co-evolution are the rule, not the exception” (p. 32). The concept “natureculture” is Haraway’s (2003) way to show that nature and culture were not originally separated, but entangled. The separation is created as a human construction through language, and a humanist anthropocentric will to enhance the superiority of the human culture over nature. Haraway (2003) argues that “There is no time or place in which genetics ends and environment begins” (p. 32). Therefore, human-dog collaboration should not be considered a biological phenomenon when discussing dogs, and a cultural phenomenon when talking about humans. The separation between artificial and natural selection is way too hazy. Instead, the evolution of dogs—and humans—was, and is, a natureculture co-evolution.

Haraway (2003) argues that telling stories about animals is equivalent to telling intra-relational tales of natureculture, co-evolution, and companion species. Hence, when talking about a dog, or a human being, they are not seen as foundational entities, but—in Baradian language—as *relata*. Another aspect of the human/dog co-evolution is the fact that this co-evolution—as is the case with all evolution—is not a historical event, but a process that takes place in every day engagement between dogs and humans.⁹² Natureculture evolution is, as is the case with any intra-relational phenomenon, always happening: “Relationship is multiform, at stake, unfinished, consequential” (Haraway, 2003, p. 30). So in what way can posthuman insight contribute to the example of literacy dogs as educational relationality? This will be developed next.

⁹² Another concept for human/animal intra-relationality is anthropo-zoo-genesis (Despret, 2004).

Literacy dogs as educational relationality

Educational subjects and relationality

Chapter 5 proposed a shift from seeing education as relationships between the two roles of the student and the teacher, and instead focusing on the relationality of the relation. How then can educational relationality be understood when seen through the example of literacy dogs? Let us first take a close look at five suggestions for working with young children in an animal-assisted literacy program. I use the example from an article on gifted children (Friesen, 2013). First, are suggestions number two, four and five: “Create an atmosphere of safety”; “Let the child lead”; and “Take pleasure in playfulness”. The suggestions focus on aspects that the research confirms about the calming and playful aspects the human-dog relation creates, and how it can be used in literacy practice.

To focus on creating an “atmosphere of safety” is to facilitate a comfortable feeling for the child and the dog. The concept of atmosphere is interesting since it cannot be measured or noticed from a distance, but can only be experienced as embodied sensibility. However, it is not an individual sensation but appears in relationality. Here, the co-concept of proximity is also important as it shows that to be in relationality is to be close and this closeness involves being part of and being responsible for the educational relationality. Further, “Letting the child lead” is allowing the child to engage with the dog in her/his own way without the handler steering the interaction. This can be seen as a decentering of the teacher role, but it installs a new center in terms of the position of the child. Educational relationality is a project for decentering a subject-centered view of education and replaces it with relational activities and ongoing transformations. This suggestion upholds the subject-centered view of education. Below, some alternative relational views will be developed. Finally, “Take pleasure in playfulness” is an aspect that decenters the humanistic idea of the rational human being enhancing both pleasure and playfulness.

Let us now also study suggestions number one and three:

1. **Understand Each Child's Unique Gifts:** Learn about specifically how this child is gifted by talking to their teacher or to their parents. Gifted children are individuals, just like other children. Ask to see examples of the child's work, if possible, that show what this child's special abilities are so you can better understand and nurture them during your time together.

3. **Consider Creative & Purposeful Learning Opportunities:** Think beyond reading, and offer learning opportunities that will allow this child to stretch his or her abilities within this safe and accepting space. For example, engage children in meaningful discussion, research, and reading and writing activities on topics such as learning how to properly meet a new dog or learning about the unique needs of dogs. Then, you can work with the child to design a poster highlighting what they have learned to present to their classmates or to display in the school library. Individualized, purposeful activities such as this may appeal to a gifted child's heightened sense of right and wrong while also offering them the challenge they need. (Friesen, 2013, p. 9)

Here, the handler has a prevalent role. First—and this is also the first suggestion—is the advice that the handler should learn more about the special abilities the student has. It is believed that the handler can understand and nurture the child better that way. Simultaneously, it is also argued that the handler should not emphasize the child's giftedness. The ability of meeting the child without any preconceived ideas of who s/he is opposed by these other suggestions. As argued in Chapter 6, learning *about* the other is ethically problematic and not founded on an intra-relational approach. For educational relationality, the co-concept proximity is central since it stands for a relation based on materiality, closeness, and ethics. Being in proximity does not mean easier access to knowledge or insights to use in a categorizing manner to deal with stable entities. Proximity is to respond ethically in relation by dealing with knowledge in an open-ended way and with a reminder of its transient character.

In suggestion number three, the handler should not let the child and the dog engage with each other independently. Instead the handler is encouraged to interfere with learning opportunities through engaging in discussion, research, and writing about various dog topics or designing a poster to display what the child learned. Here, a very traditional humanist education appears. It also clearly conflicts with suggestion number four: "Let the child lead". In Chapter 1, the problem with focusing on the educational subjects— either the student or the

teacher—was discussed, a question which is actualized here. The humanist ideas of education are not interested in, nor fit for, dealing with the complex entanglement of dog-child relationality; rather, humanistic ideas target the development of the student, as Friesen (2013) puts it, to “stretch his or her abilities” (p. 9). Here it becomes obvious that the intentions of humanist education and educational relationality differ radically. For educational relationality, it is not the capacity of the single entity of the student that is in focus, but the educational capacity generated through relationality.

In another study on literacy dogs the handler had an active role using the dog as a conversation partner:

For example, “That’s a new word that Doogan’s never heard, can you tell him what it means?” or “Doogan really enjoyed that story. He’d like to hear it again, but this time in your own words.” “Doogan wonders how [the character] felt about that,” or “Doogan wonders what is going to happen next – what do you think?” which the child can answer. (Massengill Shaw, 2013, p. 367)

Here, the main relation is between the handler and the child. The dog is used in a triangulation position, and is the subject of discussion. By focusing on the dog, the social pressure on the child decreases. The handler is talking as a teacher, but pretending that it is Doogan the dog that who is asking the questions. This way the dog is used as a tool for the reading session and the agency of the dog are perhaps successful from a literacy perspective, but it does not contribute to the development of the theory of this thesis. It is of great importance for educational relationality both to view agency relationally and to decenter the notion of human agency based on cognition, reason, and language. The argument here is not to say that handlers are not allowed to interfere in the educational relation. As *relata*, they are also parts of the educational relationality. However, the fact that even practices that include dogs are teacher-centered and anthropocentric is distressing since it shows how strong the educational humanist influence is, even outside the traditional classroom setting. And theoretically we already know in the way a handler will operate when taking on the traditional teacher role, which is exactly what is described in suggestion one and three. We already know this, as it is based on the humanistic idea of planning, talking, knowledge of the student, and learning outcomes. How then can the participants of the literacy dog practice be considered instead? That will be approached next.

Roles, relata, relationality

Massengill Shaw (2013) views the literacy dog not as a teacher, but as an effective reading facilitator. The literacy dogs are providing necessary motivation, reducing stress, and creating comfort.⁹³ However, the dogs also function as comforting classmates, or even as the children's own students (when teaching them dog tricks). The dogs can function as a neutral third party between the child and the dog's handler. In the company of a dog, the focus shifts from the child to the dog that facilitates the reading session. Accordingly, since the dogs do not have a previously fixed role in education, they are seen in different ways. What is important here is that the literacy dog is not a new educational role added to the already existing roles of teacher and student. As argued above, one of the problems in exploring educational relationality is that the discourse of the educational roles, student and teacher, is extremely strong. Instead of introducing a new role, the main contribution of literacy dogs is to disrupt the educational roles and, as a result of that disruption, opening up new space for relationality. The disintegration of the educational roles that is proposed in this work also includes the roles of the child and the dog's handler. They can appear in various ways when seen as parts of educational relationality. Using an anthropocentric approach, the dog, the book, the child, and the handler are all equally active agents in the educational relationality of the literacy dog practice.

In Chapter 6, the co-concept of edu-activity was introduced. It was argued that an edu-activity is not something a single entity does, but is constructed intra-relationally. The practice of literacy dogs will in the following discussion be read as an edu-activity. In this edu-activity, the dog's role and function should not be underestimated. In an attempt to highlight the valuable assets dogs bring to literacy practices, Waltz (2006) points out that the dogs have several teacher qualities:

⁹³ They can also function as a kind of ethos: "For example, when an argument erupted between two students, they were reminded: 'Friends of Matisse don't fight! They argue and they settle or leave each other alone'" (Friesen & Delisle, 2012, p. 106).

The animal's efforts as a teaching assistant meet a number of the Teacher Performance Expectations required of teacher candidates by the California Commission on Teacher Credentialing (2001). The dog's activity indicates competency in promoting student engagement (TPE 5), use of instructional time (TPE 10), and creating a growthful social environment (TPE 11). If assistance dogs ... are viewed simply as the object of the read aloud, a description of the interactions remains terribly one-sided and the uniqueness—and success—of this educational setting is missed. (p. 55)

Hence, the dogs are actively contributing as important relata of the educational relationality. "Competency" is for Waltz (2006) not determined by the amount of knowledge one has about learning and teaching, but by the effect it has. This resembles the way in which edu-activities were described in Chapter 6, namely as multi-directional and with an intention that appears *in* activity rather than before.

In Waltz's (2006) post-anthropocentric view on competency, it does not matter what species the teacher is. Educational relationality follows Waltz's (2006) post-anthropocentric approach but stresses that the dog is an educational relata. To be specific, in educational relationality, it is not the entire dog that is the relata but the aspects of the dog that are involved in the literacy dog edu-activity. Relata and agency are what is activated in the edu-activity. Hence, when I write educational relata with regard to literacy dogs, I do not intend any subject or distinguishable body such as an entire dog or the entire student. We can compare this with the book that is being read. The relata of the book that are activated could be the materiality of the paper, the weight and touch of it, or the letters and sentences being read. Accordingly, it is not the entire book that is activated in relationality. In the same way, the dog or student relata is what is activated: fur, breath, sound, smile, hand, or nose. It can also be more specific: a particular smell molecule originating from the student's lunch, a pair of bowed shoulders signaling nervousness, or a wagging tail.

Natureculture proximity

Based on the wide spread argument that children need to feel safe in order to risk the practice of literacy, Friesen (2013) argues that "the beautiful thing about a dog is that this is their natural specialty" (p. 9). The dogs make the children calmer in the reading sessions. Friesen (2013) emphasizes that "the dog has accepted this child just as he or she is and does not care what unique abilities or challenges they have" (p. 9). However, the dog not only has a natural affinity for

making children feel safe; the dog is also “instinctually social” (Friesen, 2009, p. 114). Hence, Friesen (2009, 2013) proposes a view of dogs as a natural social species. Perhaps I am being unjustly literal in focusing on these particular phrases, but in the light of Haraway (2003), words like “natural” and “instinctually social” are of special interest. What Friesen (2013) does here is talk about the species of dogs by defining its natural specialty. Two things are of particular interest here.

First, as argued by Haraway (2003, 2008) above, there is nothing purely natural about a dog; the dog is the result of persistent dog-human co-evolution. Literacy dogs are brought up by human beings who first take them to basic training before letting them undergo specific training in order to become certified literacy dogs. These courses are indeed cultural processes, even if they also involve aspects of bodies, hereditary behavior, and biology. Indeed, even the training courses are natureculture phenomena. When dogs are making children feel safe, it is not due to a natural specialty of the dog, but a natureculture entanglement of dog-human that is impossible to completely disentangle. The natureculture entanglement that the literacy dogs are part of is a good example of educational relationality. It can also help us realize other natureculture entanglements in education. One researcher who has already done this is Taylor (2013), who analyses children’s natureculture becoming in the world. The conclusion of both Taylor (2013) and this chapter is that an edu-activity is never either cultural or natural, but always entangled. Therefore, it should also be treated as such.

Second, literacy dogs are viewed as being naturally and instinctually social due to their species. In Chapter 2 the problem with how humanistic ideas were defining the human species (e.g. rational and language based) was discussed. When starting from a position of what the human *is*, the possibilities of what a human can *become* are constrained. There is also a risk that individuals who are not fulfilling the definition are seen as inferior beings. A similar principle applies to the demanded behaviors and qualities of students and teachers; it is determined by the definition of the student role and the teacher role. In correspondence, defining the qualities of literacy dogs too narrowly limits the expectations of what the dog could contribute to. In addition, another problem in relegating something to a category, is that it is the entity that is being defined—the intra-relational aspects are not categorized as easily. Hence, when studying a phenomenon as relational instead of as an entity, new and unexpected realities appear. It is these realities that are interesting for

educational relationality. Being social is not a quality placed inside a dog entity, but should be considered a relational character. Hence, what Friesen (2013) calls the dog's "natural specialty" is not a characteristic of the dog itself, but for the intra-relationality the dog relates is part of.

It is not a coincidence that dogs are the animals that are most used in literacy practices. Dogs are often attentive to human beings and actively seek physical and eye contact, a quality they have developed in co-evolution with humans over thousands of years. However, what is interesting in studying human-dog relations is that the social interaction is of a different kind when compared to interhuman relations. Dogs and humans share some aspects of communication (hearing voices/sounds, noticing body language), whereas others are not shared (understanding language, sensing smells). Therefore, focusing on dog behavior in the literacy dog edu-activity can decenter the privileged position of the human and her/his qualities.

Several intersubjective theorists of educational relations base their theories on the idea that the relation should aid developing good communication skills, which means reciprocal understanding between teachers and students.⁹⁴ For educational relationality, compatibility in communication cannot be a starting point since it would immediately disqualify the trans-species relations. Instead, this analysis turns to the co-concept of proximity with its non-categorizing ethics. Haraway (2003), in her work on companion species, argues for a view on stories based on relations and particularities:

Living with animals, inhabiting their/our stories, trying to tell the truth about relationship, co-habiting an active history: that is the work of companion species, for whom "the relation" is the smallest possible unit for analysis. (...) All language swerves and trips; there is never direct meaning. (Haraway, 2003, p. 20)

It is not a stable category that represents the entryway to, or the focal point of, an analysis—it is the relation. Haraway (2003) argues that working with animals is not something stable; she refers to history as "active" and has a view of language as being quite fluid—it "swerves". Writing about literacy dogs as an example of educational relationality pushes us to see the relation without losing

⁹⁴ See the discussion in Chapter 1 on the three approaches to educational relations. What I talk about here corresponds with the first approach.

the ethicality, thus turning to proximity. Instead of having a language where definitions are based on separated entities, educational relationality uses definitions based on proximity. Proximity is not a new center, but an intensity of relationality and a possibility for intelligibility. Viewed in this way, interaction can appear based on proximity instead of categories, like a species or a language. Embedded in this movement lies the ethicality of proximity since it maintains an openness to viewing close sensible relations as simply objective or as real as the ones made from a distance.

Bodily functions

When a child meets a literacy dog in a reading session a normal procedure is that the dog recognizes the child, becomes happy, then calm, is being patted, and listens to the reading. What is interesting is that the educational relationality of the child and the dog is based on the fact that the dog does not have knowledge of the child in the same way a teacher would; the dog has another kind of knowledge. In other words, what the dogs do that creates good reading results for the children are not the things a teacher usually does, which can involve supervision or corrections. Instead, dogs engage with the children using their natureculture skills developed through co-evolution and formal training. This questions ideas concerning what a teacher needs to know about a student. Even if dogs have other kinds of knowledge, such as smell and body language, their knowledge is not activated in accordance to a formal role based on humanistic ideas and ideals. The trans-species relationality creates the possibility for an edu-activity based on more-than-rational aspects.⁹⁵

The child knows that the words do not matter to the dog and therefore it is easier to read to a dog when compared to reading to a grownup that cares about reading speed and reading the words correctly. Therefore, the dog appears non-judgmental towards the child's reading. At the same time, Friesen (2009) argues that the fact that dogs *do* attend to human spoken language is an important factor behind why they are successful as literacy dogs. Since dogs recognize commands such as "sit", "paw", or commonly used phrases such as "Should we go for a walk?" they can react and act towards human beings. Accordingly,

⁹⁵ Taylor and Blaise (2014) use the concept "more-than-rational" in order to decenter the humanist rational dominance in education.

reading to a dog is not the same thing as reading to a guinea pig or a fish.⁹⁶ The dog is also attentive to the child's intonation and body language, and will reply to it. This can be used in edu-activity of reading. For example, to help children improve the intonation of their reading, the handler can explain that the dog does not understand emotions in the text unless the child expresses them while reading. When the child expresses more intonation, the handler interprets the wagging of the dog's tail as a sign that s/he has now understood the emotions (Friesen & Delisle, 2012). Hence, when the dog is involved in edu-activities, embodied aspects appear in the edu-activity of reading. Reading is now transformed from a humanistic language-centered and cognition-centered activity to a calm embodied edu-activity.

What actually happens to children's bodies when reading to dogs has not been studied in detail. However, studies of physical examinations in hospital environments show that the children's blood pressure and heart rate were lower in the presence of a dog than without a dog (Nagengast et. al., 1997). Reading aloud is for many children a source of stress. So if the children's stress during a physical examination at the hospital can decrease, it is likely that the same experience can happen in company of literacy dogs.

When the dog is patted by the child, or lies with its head on the child's lap, the child's level of the calming hormone oxytocin is increased (Kuchinskas, 2009; Uvnäs Moberg, 2003). Oxytocin is a hormone that appears in most mammals, and is often referred to as the bonding hormone due to its influence on aspects such as breastfeeding, social behavior, sexual arousal, and romantic attachment. Oxytocin is connected to a sense of calm, decreased anxiety, protection against stress, increased trust, and empathy, but can also promote defensive behavior. Hence, oxytocin itself is an entanglement of different aspects and situations. What is interesting in this account is that the oxytocin level is not a phenomenon *within* a single individual, but is working relationally. Patting the dog is not only an action performed by the child that gives her/him a sense of calm, but the act of patting is also a receiving action that produces an increased level of oxytocin in the dog as well (Kuchinskas, 2009). Therefore, referring to child-dog reading sessions as a phenomenon of the single entity of the dog or

⁹⁶ There are also studies showing that people prefer touching furry animals to touching non-furry animals (Nielsen & Delude, 1989; Hunt et al., 1992).

the child is not an accurate description. Even the two bodies of the child and the dog, which might look separate, are intra-acting through touch.⁹⁷ To conclude, the edu-activity of literacy dog practices not only decenter humanist ideas about education, but are also intra-relational down to the level of molecules.

The post-anthropocentric approach to educational relationality is forcing us to realize that human qualities are not at the center of relationality. Studying literacy dogs as *relata* opens up for a wider range of exploring educational relationality. Dogs communicate with the body, and bring with touch forth the safe feeling in the child who reads to the dog. However, this is not a dog-exclusive practice, but just as much a human practice. Humanistic and other ideas have focused on the human-exclusive characters in an anthropocentric manner, and therefore other aspects have been excluded from theories of educational relations to a high degree. Educational relationality beyond the humanist norm is what above was discussed as a natureculture relational quality.

⁹⁷ Recent studies have also showed that even eye contact between a dog and its owner can also release high levels of oxytocin (Nagasawa et al. (2015).



CHAPTER 8. Augmented Reality Technology

I would rather be a cyborg than a goddess.

—Donna Haraway

Introduction

In this chapter, I will investigate technology as an example of educational relationality. Technology is one of the most central themes in posthuman philosophy,⁹⁸ and has always had a part in creating ideas about what education means. In pre-Gutenberg medieval universities, knowledge was contained in manuscripts, and one of the roles of a teacher was to read these manuscripts aloud for the students to copy (Kittler, 2004). When the printing press was invented, and books gained a more prevalent role in society, the role of the teacher became one of interpreting and summarizing course literature. Since the more recent development of digital mediation, knowledge is even more accessible, and the canonical course literature is challenged by other media and resources (Gourlay, 2012). Digital technology is not only mediating access to information using particular devices, but is allowing us to access information in new ways such as instructional videos, virtual learning environments (VLEs), and computer games.

Instead of using technology as an inspiration for creating new ideas about education, technology often becomes a new actor in an old pedagogy, for example fulfilling the role as a transmitter of knowledge (Wright & Parchoma,

⁹⁸ See for instance Braidotti (2013), Haraway (1991), Nayar (2013), or Bogost (2012).

2011). In their study on mobile devices in higher education, Herrington and Herrington (2007) instead argue that the use of technology in this instance was even “pedagogically regressive” (p. 4). One reason why educational theories are not challenged more by recent technology is that technological devices are seen as passive objects that serve their purpose as tools for human learning and have therefore been disregarded from any educational theoretical interest (Waltz, 2006). In the background here lurks another problem, namely humanism. The humanistic dominance in education has placed the human being and the social interaction at the center of attention in education. The periphery, here technology, is therefore seen as an instrument for the centric human to use. There are plenty of studies on how to use technology as a means for learning, but few that actually discuss how technology changes our ideas of what education is or should be.⁹⁹ In order to be able to study technology, one needs to stop seeing technology as a passive tool for fixed educational aims. A good start may be to analyze the “old” technology and materiality that already exist in classrooms. Sørensen (2009) argues: “New technologies are usually implemented without any consideration of how the already-established learning materials—notebooks, blackboards, pencils, and erasers—contribute to forming the current educational practice” (p. 190). Hence, it is obvious that new technology is considered a unique artifact, and not a continuation of a technical development. However, when using insights from studies of materiality or old technology, Sørensen (2009) proposes that studies of new technology can actively contribute to the development of new educational practices. This proposal follows precisely that advice and studies new digital technology based on a critique of classroom materiality.

In this chapter, I am interested in studying how technology can be seen as an example of educational relationality, using the theoretical approaches of post-anthropocentrism and intra-relationality. This chapter has neither a technophobic, nor a technophilic position with regard to technology (Gleason, 2014). It considers technology as an already entangled part of our everyday relations, and focuses on the task of philosophically studying the educational relationality that technology is part of. The example that will be used in this chapter is augmented reality (AR) technology, which combines information

⁹⁹ There are of course exceptions, for instance Jensen (2005), Sidorkin (2011), Edwards (2010), Weaver (2010), Sørensen (2009), and Enyedy et al. (2015).

from the virtual and physical reality in technological devices. The material in this part constitutes a few different types of text material. Apart from texts on posthuman philosophy, primarily one by Haraway, articles on the use of AR in education and some posthuman analyses of educational technology will be used. Basically, the articles on AR in education will be read diffractively through posthuman philosophy and some additional ANT discussions of educational technology. The purpose of this diffractive analysis is to present AR technology as an example of educational relationality. Therefore, the co-concepts from Part II, which constitute the theory of educational relationality, also play important parts in the diffraction. When viewing AR technology as an example of educational relationality, this will also contribute to the further development of this theory and some of its concepts.

This chapter follows the following structure. First, I review some actor-network theory studies in education that follow the post-anthropocentrism of this thesis. It is argued that these do not sufficiently fulfill the intra-relational approach of the thesis. The use of augmented reality in education will be introduced along with a brief review of literature in this area. Before the analysis starts, a detour will be made to Haraway's (1991) posthuman discussion on the cyborg as a figure of human-technology entanglement. The analysis consists of a few sections, which discuss AR as a human-technology-world entanglement and consider it from a perspective of seamlessness. AR is also analyzed as intelligibility and as a multi-directional complex entanglement.

Technology in education

What then is the current situation concerning the research on education as seen from the theoretical perspectives of intra-relationality and post-anthropocentrism? Within the broader field of science and technology studies (STS), one of the most common and productive approaches is actor-network theory (ANT). When studying technology in education,¹⁰⁰ educational scholars

¹⁰⁰ To represent this example, the concept "technology in education" seemed like the most appropriate term due to its general character. Informed by Sørensen (2009), who emphasizes the connection between technology and materiality, I chose not to use the more established information and communications technology (ICT) nor "educational technology", which usually studies digital technology in terms of tools to facilitate human learning. Lakhana

have primarily turned to ANT as an approach when studying education and technology (Waltz, 2006; Wright & Parchoma, 2011; Sørensen, 2009; Gourlay, 2012; Jensen, 2005). Studies on ANT in education are clearly using a post-anthropocentric approach since they are focusing on the interactive nodes in a network independent of whether the nodes are human or nonhuman. How about the second theoretical approach in this thesis, intra-relationality? Networks are seen as something that is in constant movement (that is, can only be traced, not captured), and “ANT predicates actors on their interactions” (Waltz, 2006). Still, a tendency is that ANT studies focus on the single nodes, rather than on the relationality of the network itself. For instance, ANT uses the concept of the “black box” in order to realize that each object consists of a network of its own; hence, to open the black box is to trace its constituent parts (Jubien, 2013). When Gourlay (2012) opens the black box of her study, the lecture in a university context, she states that

an ANT analysis would see the embodied lecturer, the *PowerPoint* slides, the data stick, reading materials available in print or online formats, the screen, the hall, the VLE, the students and the mobile phones as all constituting a restless, complex and distributed network of agentic actors. (p. 207)

This is only one of several ANT analyses focusing on objects as agential, and phenomena as networks. Less attention is drawn to what Gourlay (2012) calls the “restless” aspect of the network, what in this thesis is called intra-relationality or impermanence. ANT often studies empirical examples with the purpose of tracing the components of the network, generally to show that technology *does* have agency. Since this chapter beside the post-anthropocentric argument also discusses intra-relationality, I adhere to the posthuman theoretical framework that was introduced in Chapter 3. However, the ANT studies on educational technology will serve as an extra part of the diffractive analysis. How

(2014) argues that the concept of “educational technology” has two definitions. One definition views technology as a tool for learning in a causal way; the other definition is more complex notion, in which technology is understood systemically. Despite the fact that the second definition suits the perspectives of this thesis, I prefer using the concept “education and technology” in order not to risk being confused with the former.

then is the choice of augmented reality technology in education motivated? That will be approached next.

Studying augmented reality

Most ANT studies on digital technology¹⁰¹ focus on how learners interact and learn from Virtual Reality (VR) technology, such as virtual learning environments, computer games, learning apps, and mobile learning (Johannesen, 2013; Sørensen, 2009; Jensen, 2005; Jubien, 2013; Fenwick & Edwards, 2010; Decuyper et al., 2011). In VR technology, a virtual reality is accessed through a device and the learning occurs across the distinction between the virtual and physical reality. Lately, this distinction has been blurred through the development of augmented reality (AR) technology. I will explain AR technology using an example.

Imagine going out into the dark night, watching the Milky Way in the sky. Plenty of people appreciate watching the sky above them, but do not have the knowledge to navigate in it. Perhaps they can locate the Big Dipper (the Plough) and the Belt of Orion, but that's about it. This time, instead of just watching, you take out your smart phone, and direct it towards the sky using an AR astronomy app, for example Star Walk. Now, instead of showing only a real-time image of the starlit sky on your phone, additional information appears: names of stars, information on satellites, and zodiac signs. The app uses a star spotter feature that recognizes the stars using the device's functions, such as GPS, a magnetic sensor and a gravity sensor (Zhang et al., 2013).¹⁰² From this position, you can tap your way into the universe, zooming in on the three stars that constitute the Belt of Orion, or explore the outskirts of the Milky Way. Hence, this app is an interactive encyclopedia that departs from your own place under the sky.

¹⁰¹ ANT is also widely used in order to take all kinds of nonhuman materiality into account, such as furniture, animals, architecture, and textbooks (Sørensen, 2009; Hultman, 2011; Waltz, 2006).

¹⁰² Since the Star Walk app is not dependent on visual data, one can tilt the device towards the ground and see the starlit sky in the other hemisphere. You can also tap in a particular time and place, for example a beach in Thailand, and relive the sky from your vacation. For foggy nights, in polluted areas, or even when used in daytime, the app shows what is not immediately visible in the sky.

Star Walk is one example of AR technology used for educational purposes. As devices are becoming more mobile and can receive various kinds of information about their current surroundings, they can also create custom-made information about the actual physical environment. This digital information is said to “augment” the experience the user has with the physical reality. AR is currently one of the most expansive fields in technology development and includes a growing market for new devices that facilitates AR technology, such as smart glasses, headsets, and helmets (Clark, 2015; Dibble, 2014). For the educational field, Star Walk is only one of many examples; AR technology covers most subjects (Bower et al., 2014; Lee, 2012).¹⁰³ The user is not only a passive learner, but the huge movement of students building, designing and creating within VR applications, such as Minecraft, Kano World or Second Life, also exists for AR technology (Bower et al., 2014). Research on augmented reality technology in education mainly consists of empirical studies where various devices, apps and technology have been used to teach particular content. The studies show generally good results in learning outcomes.¹⁰⁴ When using AR technology, students tend to spend more time with the learning object, they are more motivated, and their sense of relevance is greater (Radu, 2014). In short, AR applications are providing students with situated and embedded educational experiences.

AR technology brings several new discussions to the table, such as the distinction between reality and virtuality, and the distinction between user and technology. Since the blurring of categories is one of the central ideas contained in the theoretical framework of this thesis, I find it particularly fitting to focus on AR technology as an example of educational relationality. However, in order to strengthen the posthuman approach in the analysis later, I will first turn to Haraway for a discussion on the human-technology entanglement.

¹⁰³ Apart from direct educational use, augmented reality technology can be used to locate buildings in reality instead of finding them on a map; to see what potential furniture would look like in your room; to provide exact latitude, longitude and elevation information when hiking or golfing; to calculate the distance to a car in front of you when driving and to notify you when are following at a safe distance; and of course for gaming—for example capturing virtual poltergeists or shooting virtual alien spacecraft in your backyard (Widder, 2014).

¹⁰⁴ See for example the recent meta analyses on the use of AR technology in education: Radu (2014), Antoniolo et al. (2014), and Bacca et al. (2014).

The cyborg

Technology is deeply entangled in our everyday life. After a dramatic heart attack, a close relative of mine got a pacemaker in order to live a longer life. When I have a headache, I use aspirin. At pop concerts, some people watch their recording smart phone screen more than they watch the artist directly on stage. My perception of the world and different cultures is to a high degree dependent on the aircrafts that brought me to foreign countries. Not to mention plastic surgery, movies, industrial robots, and the keyboard I am currently writing on. Whether you like it or not, human beings are deeply entangled with technology. One might ask: what actually is technology?

Technology is often seen as something digital such as a computer or a smart phone, but this definition of technology is a contemporary idea. Going back 200 years, technology was industrially produced commodities; going back another 200 years, another technological intervention was the letterpress. When a technological commodity is invented, it is first considered a technology then it becomes part of everyday practice and is seen as an artifact or object. Few of us think of an ordinary ballpoint pen as a technological intervention, but when it arrived in the late 19th century it was a highly appreciated technological invention. How far can we stretch this argument? Let's go all the way, back to when our ancestors began to use technology.

Homo habilis is the name of the human species that is believed to have first used tools for various purposes about two million years ago.¹⁰⁵ Ever since s/he walked the African land, humanoids has co-evolved through the use of technological artifacts. Various hominid species have made use of technology in different ways. For example, *Homo erectus* used the same kind of stone tools for almost 2 million years without changing it dramatically. The hominid species which today is only one left on earth, *Homo sapiens*, has only existed for 100,000 to 200,000 years (depending on where you draw the line) but in that time *Homo sapiens* have clearly developed a wider range of tools than *Homo erectus*.

But it was not only the humans that used early technological items to make things, the items also made something with the humans. Fishing tools made early human species eat more fish, which helped their brains grow larger.

¹⁰⁵ The facts for this section were primarily gathered from Harari (2011) and encyclopedias.

Farming tools led to *Homo sapiens* becoming domiciled and were a crucial cause of the agricultural revolution. Mining and the extraction of metals changed the conditions for industrially produced technology to take place. The advanced digital revolution that is currently taking place makes information more accessible and the speed of information access affects the way we think. One aspect of technology, which will probably be of great importance in the near future, is the discussion on Artificial Intelligence (AI) or Artificial General Intelligence (AGI) (Bostrom, 2015). Singularity is the idea that if human beings create yet more intelligent computers, we will finally create a computer that can construct a computer that is smarter than itself. This will lead to computers creating more and more intelligent machines that will be beyond the human control (Kurzweil, 2005).

There are two insights to draw here. First of all, following the argument discussed in the last chapter on the co-evolution of humans and dogs, technology and humans have also co-evolved. The human created tools and the tools created the human. Co-evolution implies that the parts of this relation—the human and the technology—are not originally separate and later interact. Here, the argument draws on the intra-relational aspect of posthumanism, as proposed in Chapter 3. Within posthuman studies on technology, a central intra-relational text is Haraway's *A Cyborg Manifesto* (1991). The cyborg, a hybrid of human and machine, is used by Haraway not only as a means of studying technological aspects, but also as a figure for confusing and disrupting dualist distinctions in general.¹⁰⁶ Apart from the organism/machine dualism (where organism includes both humans and animals), she also emphasizes the human/animal dualism and the boundary between the physical and the non-physical. We will return to these so-called leaky distinctions (Haraway, 1991) in the analysis below.

The second insight is that technology is agential; it does something to the human. Technology is not a tool that the human uses out of its own preferences, but exists relationally and agentially with humans. Hence, studying relationality from a post-anthropocentric perspective means to involve technology and other objects in the equation. As stated above, ANT has

¹⁰⁶ For some cyborgian elaborations in the field of education, see Gough (2004) and Angus et al. (2001).

contributed to this insight with its focus on “actants” (what Barad would call agents) as well as their symmetrical and post-anthropocentric view of networks. In the analysis, both this post-anthropocentric approach and the intra-relational approach as argued by Haraway will be used. As Haraway (1991) shows, the “cyborg” is not an individual but a figure for dissolving dualist views of the world. To be a cyborg is to handle the world impermanently and not ending up as a separate entity. Such an approach also fits the logic of educational relationality. Next, let’s see what kind of relations and disruption of dualisms the analysis on augmented reality technology in education can generate.

AR technology as educational relationality

Human-technology-world

Previously, I used the astronomy learning app Starwalk as an example of AR technology in education, and I will continue with an example in a study using another AR astronomy app.¹⁰⁷ The background of the study is that teachers doing traditional astronomical instruction had struggled with producing successful astronomy excursions and exercises (Zhang et al., 2014). The problem involved practical aspects such as bringing students to a place adapted for astronomical observations during dark hours, uncertain weather conditions, and the inadequate connection between the field observations and access to knowledge about these observations. Take the last aspect for example. Observations are made and registered in the field and brought back to the classroom where they are analyzed using a book or computer software. Hence, the student and/or the teacher need to actively perform the connection between field and computer. Also, since the sky constantly changes the information about the sky must be located in a particular time and place in order for the knowledge and sky to correspond. In other words, the traditional astronomical instruction struggled with the separation between humans (teacher and

¹⁰⁷ The technological tool used (MDAS) was developed for this study (Zhang et al., 2014). The empirical material in this research was produced in 2009, and since then, a few commercial astronomical learning apps have been developed. However, the functions of this tool were similar to, for example, the Star Walk app. The results showed that using the MDAS for astronomical outdoor observations increased learning short-term and long-term, as well as increasing the motivation for learning (Zhang et al., 2014).

students), computer (containing knowledge), and field (experiencing the stars) (Zhang et al., 2014).

Instead, using the AR technology, the computer and the student can gather information on the same phenomenon, and the student can learn from the augmented picture on the screen instantaneously (Bower et al., 2014). When introducing the AR technology for astronomical observation instruction, the teacher and students can access both the stars and the knowledge instantaneously. The study showed that the students experienced a sense of both reality and accuracy using this technology (Zhang et al., 2014). The study showed that “to construct a human-computer-field experience substantially increased learner motivation” (Zhang et al., 2014, p. 187). What is of interest in regard to educational relationality is that the AR astronomy instruction activities were connecting parts that had otherwise been separated. These human-computer-field experiences were something that the traditional astronomical instruction was unable to achieve.

Instead of describing a learning experience consisting of the three separated parts—human, computer, and field—Zhang et al. (2014) propose that the experience is one of human-computer-field. Reading this experience as intra-relationality, each part exists only in intra-action to the other parts. When starting from the position of educational relationality, this pedagogical practice can also be analyzed as an edu-activity. When performing the astronomical observation, a couple of intra-actions happen. The human is placed in the field using the computer. The computer is also placed in the field with the human, delivering information about the field that follows the directions that the human proposes. The field is not only a stable location of the experience, but transmits information for the computer to receive and process. The human can access information either directly from the field or from the computer. In this use of AR technology for astronomical observation instruction, the human-computer-field experience is a kind of post-anthropocentric impermanence where not only the human subject but also relata are becoming through the relation. In order to expand the argument and use this idea of human-computer-field in new contexts, I will in the following discussion instead refer to this tripartite as human-technology-world.

A common way to frame the question of educational technology is to take as a point of departure the dualism human-technology (Keirl, 2015). What is of great importance in the introduction of AR technology is the aspect of the world. What in posthuman philosophy and educational technology has often

been dealt with as human-technology in a dualist manner, is from this position instead a matter of the tripartite entanglement human-technology-world. AR technology does not only consist of an interaction between a student and a device, but the student-technology is also located in the world. As the AR technology is collecting data about the world, the world is instantaneously agential. To recognize something as a tripartite rather than dualist means decentering the idea of the dualism. Haraway (1991) uses the concept of “leaky distinctions” in order to describe the problem of categorizing the world. Drawing on Haraway, it is easy to see the leakage in the tripartite human-technology-world. Using a cyborgian approach, technology was developed by humans and cannot be understood without that category. In correspondence, humans co-evolved with technology and are completely entangled with various technological devices and inventions. Further, the world today is undergoing a new geological epoch—the anthropocene—as a result of the impact of humans and the technologies created by humans. These are not only leaky distinctions, they deeply entangled and intra-relational.

Seamlessness

Several researchers view the way AR technology is compositing the virtual and the physical world together within the device in a “seamless” way (Bower et al., 2014; Billingham et al., 2012). The seamlessness that is intended here is the image on the screen of the device. The screen is seamless when someone cannot separate the view of the real from the view of the virtual. Instead of staying with the tripartite human-technology-world when analyzing AR, focusing on seamlessness further emphasizes the intra-relationality of the edu-activity. Whereas seamlessness in the context of AR technology mainly deals with the interface I would like to also use this concept as a pragmatic alternative after realizing the leaky distinctions because there are other definitions of what seamlessness can mean philosophically. Turning to ANT, Sovacool (2006) argues: “By focusing on the relational aspects... ANT highlights that technology emerges through a seamless web of material objects and immaterial epistemologies” (p. 11). In this account—and I am now translating ANT-vocabulary into Barad-vocabulary—intra-relationality is seamless in that its foundation is based on impermanence and not boundary objects. It might be easier to explore seamlessness in AR technology compared to other technologies, as it is ubiquitous and actively collecting data. The more obvious the agency gets, the more difficult it is to disregard it. Hence, the shift from human-technology to the tripartite human-technology-world and the further shift to the

concept of seamlessness can contribute to decentering the idea of dualist or other centric positions. One aspect of the seamless is the intra-relational aspect of seeing the processual relationality before the entity/relata. It is to keep an open-ended view on phenomena and to handle the fact that the distinctions being made are going to be leaky. There is no such thing as a correct, perfect, or “dry” agential cut—either on a screen or outside. Seen as educational relationality, this disrupts certain categories in education and makes new connections possible.

In the beginning of this analysis, I mentioned that traditional astronomy instruction had problems with a separation between the three aspects humans (teacher and students), computer (containing knowledge), and field (experiencing the stars) (Zhang et al., 2014). This astronomy instruction edu-activity has very particular circumstances with respect to time, space and knowledge that make it appropriate for the use with AR technology since it handles human-technology-world seamlessly. Using such a convincing example also helps us to notice the complex entanglements of everyday educational practices. Facts are often less stable than they seem when they are taught. For instance, earlier established knowledges are challenged due to new scientific findings such as the fossil of the previously unknown human relative *Homo naledi*, water on the planet Mars, the role of the plague in human history, and the connection of diabetes and dementia.¹⁰⁸ The point here is to notice that each edu-activity has its own set of complex entanglements and dilemmas with respect to entanglement and separations. Knowledge is created in and through these entanglements. Next, this idea will be developed as AR intelligibility.

AR intelligibility

Biesta and Osberg (2007) make a distinction between education as presentation (students being presented directly to the world) and representation (the teacher representing knowledges of the world in the classroom). Now, consider the smart phone screen showing the starlit sky with additional virtual information mixed in with it—is this presentation or representation? It is presentation since it presents the user instantly to the world just like a pair of binoculars would, but it is equally instantly representing established knowledge about this world.

¹⁰⁸ The examples are retrieved from news articles in the science section of the Swedish newspaper Dagens Nyheter; all from the fall of 2015.

Since the application is collecting knowledge about its current location, it creates new possibilities for presenting the world immediately rather than later. When studying the use of AR technology as an example of educational relationality neither presentation nor representation fully captures what is going on. The problem with these two positions—and also with Biesta and Osberg’s (2007) suggestion of an emergent epistemology—is that knowledge is anthropocentric and subject-centric. In Chapter 6 knowledge was discussed when transforming learning into the co-concept of intelligibility. How then can we see AR as intelligibility?

Let us return to the example of the edu-activity of the AR astronomy app. To start with, the foundation of edu-activity is impermanence in the sense that all aspects are part of a never-ending movement. Nothing is stable or lacks the possibility of being part of agential relations. The intelligibility of this edu-activity occurs in several places—a few of these will be described next. For the human and the device, intelligibility appears through the touch of the human hand and the device, but also through the weight of the device and the direction the human holds it in. The exact location of the device is made intelligible to the app that is made intelligible to an algorithm making a representation of the sky intelligible to the screen. The screen is making itself intelligible to the eyes of the human, which starts a cognitive process in the human. There are no essential descriptions of the direction of intelligibility; instead it depends on the analysis apparatus. The account given previously concerning the possible intelligibility of the AR astronomy edu-activity mainly serves the purpose of decentering the learning process from the human subject. It also shows that even if the app is dealing with established facts from a database the educational relationality contains intelligibility to a far larger extent than a traditional view on content in education would offer. It also shows the intentions an edu-activity can have and the multiple directions it can take. Further, it allows us to see agency as something post-anthropocentric occurring at more places than is common in educational settings.

Approaching intelligibility this way also makes it possible to further explore the seamlessness of the edu-activity. Above, Sovacool (2006) pointed out that the seamlessness is concerned with material objects and immaterial epistemology, which means that the object and the knowledge of this object cannot be entangled. Seamlessness means that knowledge is created through the becoming of the edu-activity. Each relationality contains ethical, ontological, and epistemological dimensions, and is co-created with the apparatus. Just as the

electron in the double slit experiment depends on the apparatus to become ontologically and epistemologically, each edu-activity has its own apparatus that is part of the creation of knowledge and reality. Each edu-activity also carries ethical implications, for instance the aspects of proximity and seeing categorizations as open-ended. All this is what in the previous section was referred to as the complex entanglements of edu-activities.

The point is to contrast a thinking based on causality and linearity, which is connected to a subject-centered process. Studying AR technology as educational relationality can instead be an example of a multi-directional intelligibility where the intention appears in relationality. Hence, when opening up for intelligibility, many positions are decentered, such as the human, cognition, rationality, and the subject. Instead of a centric position, education appears to be, as Mol (2002) states, “more than one but less than many” (p. 55). Hence, the point is not to localize the complexity of the entanglement as an infinitely endless entanglement but mainly as something decentered.

Reality and intelligibility

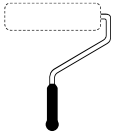
Bower et al. (2014) argue that AR is a kind of “mixed reality” since it uses both the physical reality and the virtual reality in its technology. This is perhaps best understood as a technological description of the function of the device. However, from a posthuman perspective, the mixed AR reality can be seen not only as a mix of different types of reality but also as a reality in itself. Depending on where you draw the categorizing agential cut, different realities are created. When virtual reality (VR) was introduced, it functioned as a separate world in contrast to the physical world. The more connections between VR and physical reality were developed, the more “real” even the virtual world felt. Thus, now that AR is established, it displays aspects of the virtual reality onto an image of the physical reality seamlessly. I will show that this fluidity is not a bad thing, but rather something that helps us understand and learn about realities differently. In fact, realities are emerging and impermanent, just like humans, bees, waves, books, or photosynthesis. All realities are equally real, independent of who or what experiences this reality. All realities are also equally transient due to the impermanence of the world. Further, each intra-action is dependent on the apparatus in order to create matter and meaning. Observer and object are entangled. To be an observer, or to be observed, is not a passive activity; it requires a constant entanglement of apparatus and world. When the sky is making itself intelligible to a pair of human eyes one kind of reality is being produced, but when the sky is making itself intelligible to the screen through the

AR another reality appears. In other words, the eyes and the AR device are different apparatuses.

It is also important to remember the anthropocentrism of the technology apparatus since the screen is adapted to the way humans perceive the world. Facts are not neutral or objective but always created with an apparatus that affects in what way the fact is presented. Since sight is one of the primary senses of the human, the human-adapted technology uses a vision-based interface. Thus, from a post-anthropocentric perspective, what is displayed visually on the screen is only one of several aspects to consider when studying AR as an example of educational relationality. The relationality of AR also concerns—apart from the time and place of the usage—for instance students, devices, teachers, and software.

One reason that the example of AR was selected for this chapter is that it creates a stronger sense of the device being agential than, say, a chair. However, that is an illusion. The absolute movement, impermanence, cannot be valued on a scale from less to more—it is absolute. What is different is the way the relations occur. I have selected AR technology and literacy dogs as examples because they are able to convincingly show how nonhuman relata are parts of agential and unique educational relations with humans. However, the theory and co-concepts also be used to study other, less apparently agential examples—the example with the giants' cavities in Chapter 6 was one such example.

I am not arguing for an educational system without humans—humans are great in many ways. But I do argue against letting human categories and qualities specify what is a valuable or successful educational relation. A theory of educational relations should have a strong relational focus rather than being defined by the characteristics of the human relata.



CONCLUSION. Towards New Beginnings

Introduction

What then has been accomplished in this thesis? In this final chapter some concluding remarks will be made. However, the discussion is not looking back as much as it is looking forward. Biesta (2014) asks for his books to be read as an invitation or a beginning for further theoretical and practical work. He states: “For [beginnings] to become real, ...they need to be ‘risked”” (Biesta, 2014, p. xi). In risking the current work, new work will follow, and further work will follow after that.

In this chapter I will continue to exemplify educational relationality, however the examples are this time memory stories. The memory stories are each connecting to the co-concepts of the thesis and sketching out some new beginnings that can be developed in future work. Thus, they are not as elaborate as the examples in Chapter 7 and 8, nor do they diffract theories and establish new concepts, as was the case with the examples presented in Chapter 5 and 6.

So, to follow Biesta, am I now risking the beginnings enough with this concluding chapter? The previous parts of this work deal more with relationality and how to think relationally in order to decenter human subject positions. What was before only considered one aspect of intra-relationality—movement/impermanence—is now, towards the end, receiving more and more space in the discussions. Risky or not, these are the new beginnings that hopefully will become real in another context.

First, nature is discussed as an edu-activity alongside literacy dogs and AR technology, and nonhuman relata are discussed as part of unique relationality. Next, I will discuss the human limitation of experiencing impermanence and how teachers can handle movement and activity that they cannot access.

Intelligibility is approached from a new perspective, namely how to observe without value or categorization. Finally, the phrase “cutting through water” is motivated for educational relationality. It performs different cuts than those described in previous theories of educational relations, in addition to recalling the transience of the cut.

That said, let’s begin.

Alone in the forest

Once in my compulsory school years—I am guessing my classmates and I were about 12 years old—we went on an excursion to a forest. I cannot recall exactly what we did there, but I presume we were picking leaves, watching birds, and playing games. However, I remember one activity very clearly. Our teacher took the entire class for a walk through the hilly forest terrain and dropping off one student at the time, he placed us out of sight of one another. When we were all in our own spots we simply stayed there—not for very long—until another teacher came and picked us up one after the other. As far as I can remember, we were not given any instructions other than to stay where we were and to have the experience of being alone in the forest. Or, perhaps an experience of being in relation with the forest.

This thesis uses a post-anthropocentric agenda to argue that relations are not something that exists only between humans. As argued in Chapter 1 and 2, the underlying foundations of education today focus extensively on the individual learning subject. In intersubjective theories of educational relations, a social psychology approach aims at contrasting individualism with a collective approach, thus often arriving at a view of relations as the balance between the individual and the collective. Instead, the theory of educational relationality argues that the relation is something in and of itself, independent of the parts of the relation. Thus, from a post-anthropocentric perspective, educational relationality is studied independently of the species or the material composition of the parts. The main aspect of educational relations is not social interaction, but socio-material intra-relationality. In Chapter 7 and 8, I studied the educational use of literacy dogs and augmented reality technology as examples that illustrate educational relationality functions as a theory, even when the relations involve nonhuman relata. I will soon return to a discussion on how the forest, or nature, can be studied as part of educational relationality.

It was not a coincidence that I chose dogs and technology to develop as examples in Chapter 7 and 8. They are two quite obvious posthuman examples since entanglement with humans can be explained in both instances through aspects such as the dog/human co-evolution and the huge impact technology has on human lives. Technology is important as its role in the lives of human beings today is expanding, not least in terms of increasing its entanglement in human lives (Bostrom, 2014; More & Vita-More, 2013). This development is sometimes positioned in contrast to human contact and our relation to nature, for example Louv (2008) warning of a nature-deficit disorder in today's children. Educational relationality has striven towards the use of a flattening approach in its theory, co-concepts, and examples. For instance, technology is approached neither from a technophilic nor a technophobic perspective. Instead, what is of interest is the relationality. Thus, for educational relationality dogs, technology—or forests and nature—are all approached as equivalent types of relata. This does not mean that all relationality looks the same, rather that each relationality is unique.

In Chapter 5, I discussed the idea uniqueness as a recurring theme in both humanist and intersubjective approaches to education. Instead of seeing uniqueness as belonging to the single individual who runs the risk of being replaced, I argue for the co-concept uniqueness-as-relationality. From an impermanent intra-relational position, everything is constantly in movement, thus constantly replaced. At the same time, everything is constantly part of something else, and therefore relationality is always unique. There is today a general idea in society that uniqueness belongs to specific things or beings and that some are more unique than others. Humans are viewed as the most unique entities, followed by pets, other animals, plants, other living organisms and inorganic compounds. At some point towards the end of this list come technologically mass-produced devices, perhaps with exceptions such as Tamagotchis and computer games. Education and other areas tend to prioritize the importance of a relation based on the estimated uniqueness of the thing. For example, one argument for not being replaced by technology is the unique responses that a human can give which a computer or a robot lacks the capacity to provide. For educational relationality, uniqueness does not belong to a single entity; therefore it cannot be valued, but can only appear. From this perspective, it doesn't matter whether the relata is technology, a dog, or a forest.

Today, the research being conducted on technology in education is extensive. However, from a posthuman perspective there is a critique that discussions

mainly concern the ways in which humans can learn about technology or use it to facilitate learning (Sørensen, 2009; Jensen, 2005; Waltz 2006). Seen from the standpoint of educational relationality, it would be interesting to decenter the human position and continue to study what happens when students engage in relations with technology. Another area that would be interesting to study further is the way questions of nature, environment, and sustainability are approached in education. For instance, in the area of environmental literacy a well-known insight is that although knowledge of environmental issues is important, there is still an enormous gap between what people know and what people do. Instead, environmental literacy also involves understanding how to motivate individuals to change and how to get them to take action individually or collectively (Orr, 1992). However, perhaps it is not more of the same kind of education that is needed, but a different approach to education that proposes other values and views on the environment (Orr, 1994). There have already been contributions to this discussion, but it would be interesting to study environmental literacy from the perspective of educational relationality and whether a post-anthropocentric intra-relational approach could help to reduce the gap between what people know and what people do.

I do not wish to over-analyze why our teachers placed us alone in the forest that day—perhaps they had very noble or very naïve intentions with this activity. However, taken out of its original context, it is an interesting edu-activity with posthuman relational potentials. In Chapter 6, the co-concept of edu-activity was described as an activity with educational intention that appears relationally rather than as a result of being planned by a teacher. The edu-activity also contested the predetermined direction towards the student, instead arguing for a multi-directional activity that appears relationally. When left alone in the forest, it appears as if there is not much to do. However, edu-activities may correspond with the other co-concepts, for instance with the previous discussions on impermanence and intelligibility. The student is not placed in the forest with a particular intention and given a particular task to solve. In this edu-activity initiated by the teacher, the student and the forest can engage in a relation without being watched or disrupted by a peer or the teacher. There is no need for a “handler” of nature as there was with the literacy dogs in Chapter 7. As has previously been argued, the handler often interfered in the dog/child interaction and through those interactions confirmed a humanist logic in the situation. We can conclude the importance of realizing that each edu-activity is relational and has its own logic, intelligibility, and uniqueness, independent of whether the relata are dog, technology, or a forest.

Window gazing

There is at least one of them in every class: the student who is always dreamily gazing out the window. I was also that kind of student in my early school years; I was a good student, but quite slow since my thoughts and gaze kept wandering off. And as a teacher I have often found myself tapping on the student's desk in an attempt to direct her/his attention to be where it should be, namely attending to the assignment that has just been handed out. What can it mean to direct a child who looks out the window to focus on the textbook? It implies that learning is the activity of the textbook, not of being in the world. It is to socialize a child into the role of the student and an able citizen. Letting thoughts wander could even be a more successful method for arriving at insights than focusing on the specific problem. The problem is that this activity is not visible to the teacher, thus the attention seeker tapping on the desk.

In the story above, and in many other accounts of education, teachers expect activity from students, at least the kind that is initiated and sanctioned by the teacher. I will here refer to student activities as “movement in the classroom” in order to avoid confusing this discussion with the previous discussion on education activity.

Read through educational relationality, movement is regarded as impermanent and post-anthropocentric. Impermanence was introduced in Chapter 5 as a co-concept in contrast to a view on becoming as the becoming of the subject. Instead, becoming-impermanence, or impermanence, was discussed as an aspect that took into account the becoming of the world using a flattening approach that does not privilege the human subject. Thus, considering the role of impermanence in the classroom is not limited to what is visible or in any other way only perceivable through a human sense. Nor is what counts as movement restricted only to cognitive ideas formulated through human language; embodied or material movement may also be considered. Humans are accustomed to emphasizing the movement that is visible or performed rationally, which is a centric position that disregards nonhuman movement. This idea is connected to the effect Newtonian and atomistic positions have had on humanistic ideas about education and learning. From these perspectives, movement and activity are created by humans and acted out mechanically onto things or other humans. Movement is usually something we don't expect to happen unless human beings make it happen. In contrast, impermanence means that the world is at its foundation in constant movement rather than being still.

The teacher's idea of what movement is or is not is determined by the human apparatus. A human being experiences the world with her/his senses and her/his perception of time, which are also the limitations of the human apparatus. Some aspects change over the span of millions of years, which is not a perceptible timeframe to a human. In Chapter 6 this question was addressed when sharing the story of the field trip my elementary school class did to a nearby stream with giants' cavities. The rocks and the walls of the cavities had been peeling against each other for many years, thus the movement was not noticeable to the human eye until many years later, or perhaps even after the equivalent of a human lifetime. A movement can also be so small—or large—that its movement is not visible to the human eye, for example the movement of house dust mites feeding on shed human skin, or the movement of the moon. Accordingly, just because the movement is imperceptible to human senses does not mean that the object is stable and does not have agential qualities. Seeing the world as impermanent and the human related as a part of this movement, is the foundation of educational relationality.

As discussed in Chapter 1, the educational relation developed from a relation where the teacher subject transmitted knowledge to the student object. Today, the most common model is an intersubjective relation between the teacher and student as two subjects. Now posthuman perspectives have brought the relation to the point where it has undergone another decentering process, which adds materiality and things as parts of the relation. Things that were previously viewed peripheral passive objects in the intersubjective relation are now seen as active agents. Seeing agency in materiality and things is a crucial aspect in the logic of impermanence. Thus, teachers have now another challenge ahead of them, namely to develop a teacher role that takes active material agents into consideration. The educational segment that produces the most progressive ideas regarding posthuman and agential aspects in both practice and research is probably early childhood education (cf. Lenz Taguchi, 2010; Taylor, 2013; Hultman, 2011).¹⁰⁹ Aside from early childhood education, there has been plenty

¹⁰⁹ This discussion serves only as a humble estimation of which educational areas work more extensively with posthumanism. After early childhood education, I would place educational technology, curriculum studies, and art education in terms of their posthuman content. Note that these are all areas that contained materiality even before posthumanism, unlike educational relations. See also the literary review in Chapter 1. For discussion on why early childhood education deals more easily with posthumanism, see footnote 21.

of empirical educational research done from a posthuman perspective, as reviewed in Chapter 1. Even though the early childhood education research is interesting, it would also be interesting to see more posthuman analyses performed on compulsory school and adult education. The more formalized and humanist the education system, the more challenging research—but probably also the more interesting the results. Apart from the posthuman empirical research, when it comes to theoretical or philosophical work, the examples are considerably fewer. Even though a critique of humanistic ideas has been admitted for quite some time, very few theorists have approached the anthropocentrism of the humanistic thinking. Still plenty of work—both within and outside the philosophy of education—is required in order to use or develop the theory and co-concepts of this thesis.

To conclude, with reference to impermanence, teachers could begin to see and allow movement as something much more vast and substantial. A student who gazes out the window might be in movement even if her/his cognitive apparatus is not activated in relation to the assignment on the desk. It could also be that the student is cognitively activated to the assignment despite not having an embodied relation with it on the desk. Educational relationality requires teachers to be open to impermanence, not seeing knowledge as existing inside themselves or in books, but by seeing it relationally as part of the ongoing transformation of the world.

Strike a pose and observe

I was lying on the floor in an unusual position. My left leg was pointing straight back while my right leg pointed forward and to the left, but with the knee bent. My hands and torso were stretched forwards, allowing my forehead to rest on the ground. By now, I had practiced yoga long enough to know that the position I was in was called “the resting pigeon”. In classes like this one which focused on tranquility, we were encouraged to find a challenging yet comfortable position, before keeping still and focusing on the breathing. When one remains still, plenty of sensations, thoughts, and feelings can appear. The instructions from the yoga teacher was to observe without valuing, categorizing, or analyzing. Then what did I observe from the position of the resting pigeon?

While keeping my limbs still, I observed that other parts of my body were in ongoing transformation: thoughts and sensations appeared and disappeared in a

continuous flow. This made me realize that I normally only take the body's more apparent movements into consideration. I also observed materialities such as the pressure of the ground, the smell of the yoga mat, the sense of air through my nostrils, and the weight of my t-shirt. Thus, I was also in constant relationality. But above all, I observed what happened while I was only observing. For instance, when a sensation appeared on my thigh, I observed it without determining if it felt painful or pleasant and without determining if it felt good or bad. And since I would stay still until the yoga teacher told me so, I just stayed in position and kept observing.

Observing offers a very different mindset compared to practices I normally engage in, such as researching and teaching. In these practices, concepts and categories are central to understanding new information, or for formulating new ideas. My own texts, and those of my students, are constantly valued. To only observe can allow us to experience aspects of the world that do not make sense, or do not appear to, when we try to put them into categories. Thus, observing is allowing sensations to make sense without having to actively or rationally handle them. This approach has a lot of potential when it comes to handling and making use of intelligibility, which was introduced as a posthuman alternative to learning in Chapter 6. As argued by Dear (2006), "An account makes sense just because it does, not because of some prior condition or criterion: the intelligible is the self-evident" (p. 14). He questions why accounts must fit already existing ideas or concepts. Intelligibility is not restricted to existing categories and is not in need of an analysis. To observe intelligibility involves letting something appear in whatever shape it appears, and experiencing it without trying to change it or explain it. Dear (2006) calls it the self-evident, but it is important to notice that for educational relationality, the "self" is not an independent subject, but the relational observation in itself.

What does this mean in terms of educational practices? The yoga class is a fairly traditional informal learning setting consisting of a knowledgeable teacher who shows the students or participants how to perform the positions. At the same time, the practice to observe is not like any other activity performed in school. Students are constantly asked for meaning: to actively think about a problem, analyze a feeling, or explain a drawing. This way, it is still humanist and anthropocentric. Instead, to observe is to allow what is intelligible to be self-evident and to make sense to the relationality and the relata – irrespective of whether it is categorizable or not.

Each observation is performed as an entanglement with the observer, that is, based on intra-relationality. To teach students to be observant to what appears relationally could be a way to start working past fixed categories. Intelligibility can occur with a view, a bodily experience, an animal, technology or even through a classroom assignment. The very point of the concept of intelligibility is to create an alternative to seeing learning as something measurable within the student subject. Therefore, it is impossible to assess if one activity is intelligible or not. With observation, intelligibility can appear as sensation but may still not be measurable or categorizable.

Cutting through water

The phrase “cutting through water” is rich with connotations. A Korean proverb states that the love in a family is like water: it stays together even after a quarrel/cut. Boats and divers are cutting through water. There are scientific reports on hydrophobic knives that can cut a single drop of water in two. Finally, a Buddhist use of the metaphor involves explaining that an offence cannot harm you if you think of it as a cut through water instead of a cut through sand or stone.

In this thesis my desire was to propose a theory that directs the attention to what is not usually categorized, or even not categorizable. Educational relationality is about approaching the world with the assumption that everything is transient. Performing a cut through water is creating a reality, a theory, and something to continue working with.

The cut is not a clearly limited category, but rather a disruption in impermanence. It is not difficult to cut; it is done all the time. What is difficult though, is deciphering lingering cuts or the cuts that keep repeating themselves in a performative manner. These cuts might even claim to be essential or given. In educational research, humanism is this type of cut, motivating its position in reference to descriptions about what humans are like.

To be more specific, this thesis has located two centric positions that cut through the field of educational relations so deeply that they are often taken for granted as foundations of theories in this field. Anthropocentrism and subject-centrism were previously introduced in Chapter 1 and their humanist background was reviewed in Chapter 2. Humanist thinkers who wanted to formulate rational objective knowledge did so through creating a separation

between the subject and the world. In contrast to separate entities as the basis of knowledge and being, to explore proximity—as discussed in Chapter 5—is to leave the subject position and to be ethically responsible for, and entangled with, the world. Having a sensation of being in proximity to the world is to explore knowledge as intensity and relation rather than as an object with measurable qualities. In order to further undermine the two humanist cuts, a decentering strategy is used, of which proximity is one example of a relational decentering co-concept.

Water might seem still on the surface, but since it is a fluid material, it is constantly moving. Each reality is revealed just like a cut through water. A cut changes the water/world just like the scientific apparatus affects the result of the electron double-slit experiment—as discussed in Chapter 5. That is how each categorization of entanglements mentioned in this thesis functions. Movement exists in the water before and after the cutting, but it is through the cut that reality presents itself to us. A cut through water is different than other cuts because it does not stay divided. It is also worth remembering not only that it's not only humans who are cutting through water, but that this is a metaphor that involves all relata that are making sense of the world. The world appears differently if the cut is made by a jellyfish or a human, but also if the cut is made by the hearing sense, eco-location sense or tactile sense. Accordingly, it has in this work been vital to develop concepts that (i) cut the world differently than it is usually cut by centric positions, and (ii) keep in mind the transience of the cut. As argued in Chapter 5, transience does not mean that uniqueness disappears. Instead, it is a matter of relocating uniqueness from the single subject to the impermanent movement.

All agents in educational relationality are constantly performing cuts when using concepts, producing categories, and making meaning of the world. What this thesis contributes to the already vibrant area of educational relations is an argument beyond educational roles and subjects; it is an argument that acknowledges relationality as both entanglement and movement. It is about approaching educational practices as temporary, yet unique, cuts through water.

To conclude

Educational relationality is not about creating entanglement—it is about observing the entanglement that is already there. Nor is it about creating movement—it is about observing the movement that is already there.

And here.

Summary

Based in an ongoing debate—academic as well as public—regarding the roles of the teacher and the student in education, this thesis is concerned with educational relations. The aim of the thesis is to develop a new posthuman theory, *educational relationality*, based on a critique of intersubjective theories of educational relations and to read these theories diffractively through posthuman philosophy with a focus on intra-relationality and post-anthropocentrism.

The following research questions are proposed for illustrating theoretical, educational, and methodological problems:

- (i) What is the humanist background on intersubjective theories of educational relations and how does this motivate the development of a posthuman alternative?
- (ii) How can the methodology of diffraction be used in a philosophical study on the topic of educational relations in order to develop new theory?
- (iii) What transformations are made when reading educational and intersubjective concepts through posthuman philosophy and how do these concepts contribute to an understanding of the theory of “educational relationality”?
- (iv) How can “educational relationality” be exemplified and analyzed with concrete posthuman educational examples?

The overarching structure of this thesis consists of three parts: Beginnings, Diffractions, and Examples.

Part I: Beginnings

Part I deals with the various starting points—beginnings—of the thesis: situating the thesis, aim of the study, research questions, previous research, theory, and methodology. These beginnings are presented to show that the research is conducted with careful consideration, but they are also necessary to provide an understanding of the subsequent parts.

Chapter 1 locates the thesis as a study on educational relations in the field of philosophy of education inspired by posthuman philosophy. The departure is in existing theories of educational relations, primarily the intersubjective ones.

After a general overview of the field, I argue there are two main problems with the intersubjective approach to theories of educational relations: subject-centrism and anthropocentrism.

Even if intersubjective theories are relational, they often originate from the idea of an individual entering a relationship to encounter another individual with the result that these individuals are transformed through the relationship. Hence, the relation is in fact not the starting point, but a place for individuals to meet and transform. I argue that the educational intersubjective theories too often take teacher and student roles as their points of departure. These educational roles come with a rich conceptualization concerning what it means to be a teacher and what it means to be a student. One of the purposes of the intersubjective approach is to critique individualistic approaches to education. Despite this, the starting point for intersubjectivity is still what the individual brings to the relation and what transforms through the relation. In this thesis I will critically refer to this problem as the *subject-centrism* of intersubjective theories of educational relations. When relations are treated as temporary meeting places for educational subjects they repeat subject-centered epistemological and ontological starting points instead of relational ones.

The second main problem with intersubjective approaches to theories of educational relations is that these approaches start with the idea that educational subjects must be human. When focusing on the constituents of the relation, the ideas about these subjects start not only from the presumptions of what it means to be a student and a teacher, but also from what it means to be a human being. Nonhuman aspects are continuously being overlooked in educational research and when they do appear they are considered to be instruments for humans to use to facilitate learning or objects to learn from. Intersubjective theories of educational relations consistently take only humans into consideration. Nonhumans do not fit in these theories and are instead brought up in other theories concerned with curriculum, educational technology, or school architecture. Thus, in this thesis I will refer to this problem as the *anthropocentrism* of intersubjective theories of educational relations.

Chapter 2 investigates the humanist foundation of the two central problems of intersubjective theories, anthropocentrism and subject-centrism.

In posthuman theory and posthuman educational research it is common to refer back to humanistic ideas and ideals. Each description of humanist heritage is based on the posthuman stance that is being argued, usually in order to criticize

the anthropocentric idea of the rational individual subject. This chapter strives towards an understanding of the humanistic influence on the field of educational relations and I will develop an understanding based on anthropocentrism and subject-centrism.

The concept of humanism is seen as a placeholder for various camps and is used to define what each argues as a definition of what is human. The common denominator for various humanist stances is the centric position of the human being. In order to keep the animals in the periphery, an emphasis on the rationality of the human mind is central in humanist thought. Even if rationality and individualism are emphasized characteristics, especially in Enlightenment humanism, these aspects were also balanced with contrasting ideas such as passion and society. The human/animal separation is discussed as a consequence of valuing human-exclusive traits (e.g. rationality, spoken/written language) more highly than the ones shared with animals (e.g. body, emotions, intuition). The chapter also discusses the connection of various centric positions and the feminist decentering strategies.

Chapter 3 presents the posthumanist theoretical framework of the thesis. In contrast to the two humanistic problems anthropocentrism and subject-centrism, the theoretical framework contains the two concepts of post-anthropocentrism and intra-relationality.

Biesta (2004) critically argued that a theory of educational relations “is *not* about the ‘constituents’ of this relationship (i.e., the teacher and the learner) but about the ‘relationality’ of the relationship” (p. 13). It is this idea of the ‘relationality’ that can serve as a contrast to subject-centered accounts of educational relations. When placing relationality at the focus of investigation, the individual teacher and student are no longer the protagonists of the story of educational relations. Hence, the idea of educational relations as a relationship between two distinct individuals is transformed into a view of educational relations as foundationally based on relationality. For this purpose, the concept of *intra-relationality* is developed as one of the two concepts of the theoretical framework.

In contrast to other relational theories, intra-relationality proposes a view where the relationality is the point of departure. In other words, a subject is always seen as a component of relationality and never as an entity with essential inherent qualities. Intra-relationality is a philosophical idea based on movement, entanglement, and ongoing transformation. This ethical aspect plays a particular

role in intra-relationality since it involves entanglement in others, and all entanglement carries an ethical dimension.

The second of the two concepts of the theoretical framework is contrasting the anthropocentrism of intersubjective theories and humanist thinking. As was stated throughout this work, contemporary theories about educational relations prioritize human relations and agency. Learners are not separate subjects with inherent qualities who learn about objects with inherent qualities. Humans, furniture, animals, books, and technology are parts of educational relationality. Here, the intra-relational approach discussed above is accompanied with the second of the two concepts of the theoretical framework of this thesis: post-anthropocentrism. *Post-anthropocentrism* refers to a decentering critique of the human as the center of the world, a lense through which other aspects of the world and knowledge are seen as being created for human use.

Chapter 4 introduces the diffractive methodology of this thesis. When framing the methodological challenges for this thesis, I brought the insights from methodologies in philosophy of education. Firstly, a shift in focus from the “philosophy of problems” rather than the “philosophy of the philosopher” is considered an important shift. Further, I look for inspiration for my methodology in research in which theory, creation, and experimentation are important.

But what does the theoretical framework ask from a methodology? As the main theorists of the thesis are Barad and Haraway, I also turn to the methodology they propose—*diffraction*—as it creates a direct link between this thesis’ theoretical framework and methodology. To perform a diffractive analysis means to study how the texts engage intra-actively with each other, with the research questions, with the researcher, and with other unexpected aspects. A text always comes into being through intra-actions with other texts and readers. Therefore, a diffractive analysis does not aim to find the essence of a text or the author’s exact intention. Close attention is paid to the intra-actions and to the possibilities for new ideas evolve. Accordingly, reading one text through another is involves looking for contrasts and connections, and is not about representation or classification.

When reading theories through one other, not only will creative new concepts appear but some memories will also emerge. Some memories pass swiftly, whereas others leave traces. The memories that leave traces are written down as *memory stories* and made into data that becomes part of the analysis of the thesis.

Part II: Diffractions

Part II presents the diffractive analysis, out of which the resulting theory educational relationality is developed. Intersubjective theories of educational relations are read diffractively through posthuman philosophy, focusing on productive and creative ideas. The diffractive readings in Part II are all present in the conceptualization of the theory of educational relationality, and the co-concepts are developed through transformations to support the theory.

Chapter 5 analyzes the role of relationality in educational relationality. Instead of focusing on the “becoming” of the human subject, the co-concept *impermanence* primarily promotes the continuous becoming of all aspects of the world. Impermanence departs from the notion that the world is in constant movement. In contrast to the view of uniqueness that takes only human individuals into consideration, the co-concept *uniqueness-as-relationality* considers the intra-relational world as the foundation for all uniqueness. Considering the world impermanent, everything is always replaced, thus uniqueness cannot be connected to a stable position—instead each transient moment and relational configuration is seen as unique. Instead of relationships based on separate educational subjects, the co-concept *proximity* focuses on relationality based on ethical and material closeness.

Chapter 6 analyzes the role of education in educational relationality. Instead of locating education in the gap between the teacher and student, the co-concept *edu-activity* is proposed as the location of posthuman educational relationality. It is argued that edu-activities do not have pre-determined intentions and directions, but that these intentions and directions are created in relationality. Instead of viewing learning as an anthropocentric activity directed towards the student, the co-concept *intelligibility* discusses the transformative aspect of educational relationality from a post-anthropocentric approach. In relationality parts of the relation make themselves intelligible to one another in various human and nonhuman ways.

The following chart concludes the transformations caused by the diffractive readings in Chapter 5 and 6.

The becoming of the educable subject, instead of a more stable being	→ focus on the becoming of the world in constant movement, introducing <i>impermanence</i>
The importance of guaranteeing human beings uniqueness-as-irreplacability	→ uniqueness in connection to the constant intra-relational reconfigurings of the world, introducing <i>uniqueness-as-relationality</i>
Relationships based on separated educational subjects	→ relationality based on ethical and material closeness, introducing <i>proximity</i>
The location of education in the gap between the student and the teacher	→ education located in the intra-relational activities, introducing <i>edu-activity</i>
Anthropocentric learning with a direction towards the student	→ learning as post-anthropocentric and intra-relational, introducing <i>intelligibility</i>

Part III: Examples

In Part III, two nonhuman educational examples are used to exemplify the theory of educational relationality. The two examples are animals and technology, more specifically the use of *literacy dogs* in animal-assisted literacy projects and the use of *augmented reality* (AR) technology in education. However, following the intra-relational approach of the diffractive methodology, the examples are not passive objects onto which a theory is implemented, but also become active co-constructors of the theory through the analysis. The purpose is to perform a diffractive reading of the two examples through educational relationality and posthuman philosophy. The analysis aims first to exemplify educational relationality, and second to use insights from these analyses for further development of the theory of educational relationality. The two examples are discussed in an intra-relational manner, meaning that it is not the dog or the technology as a single relata that is of interest, but rather the intra-relationality they are entangled in. Each chapter provides a brief introduction in which the example is contextualized. After that, the example is read diffractively through posthuman philosophy, the theory of educational relationality, and its co-concepts.

Chapter 7 discusses the use of *literacy dogs* in animal assisted literacy projects. So far, there are no studies on the use of literacy dogs using a posthumanist approach, nor any studies with a philosophical ambition. Therefore, I will make use of the theory of educational relationality, along with a closer diffractive

reading of this example and Haraway's philosophy dealing with companion species. The literacy dog practice is analyzed with the co-concept edu-activity. The literacy dog is viewed as a natureculture phenomenon that decenters the idea of what it means to be an educational subject/relata. The decentering process contributes to rethinking the body's release of oxytocin and other bodily functions as intra-relational materiality. The chapter also uses proximity to develop a way to understand communication across species.

Chapter 8 deals with the use of *augmented reality (AR) technology* in education. While viewing the sky with an astronomy learning app using the camera, additional virtual information is added to the image, creating an augmented reality. The common human-technology dualism is shifted to a human-technology-world triptate, which is then shifted to viewing the use of AR in education based on seamlessness. The analysis discusses AR as a multi-directional complex entanglement. AR is also analyzed as intelligibility and what this means for educational relationality.

The thesis ends with the concluding chapter "Towards New Beginnings." Accompanied by a few memory stories, this chapter discusses the final examples as new beginnings or as points of departure for others to continue to engage. First, nature is discussed as an edu-activity alongside literacy dogs and AR technology, and nonhuman relata are discussed as part of unique relationality. Next, I will discuss the human limitation of experiencing impermanence and how teachers can handle movement and activity that they cannot access. Intelligibility is approached from a new perspective, namely how to observe without value or categorization. Finally, the phrase "cutting through water" is motivated for educational relationality. It performs different cuts than those described in previous theories of educational relations, in addition to recalling the transience of the cut.

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Cutting Through Water

How can educational relations be understood differently? This thesis uses a posthuman approach that considers the world as being in constant relational movement and that ascribes agency relationally to humans or nonhumans alike. From this position, the theory of “educational relationality” is introduced and developed as a contribution to the field of philosophy of education. The thesis uses examples such as technology, dogs, and memory stories as parts of its philosophical investigation.

Simon Ceder is a researcher at the Division for Education, Lund University. His research interest are educational theory and posthuman philosophy. He has a background as a highschool teacher in Swedish and biology. *Cutting Through Water* is his doctoral thesis.