

Storying Diffractive Pedagogy: Reconfiguring Groupwork in Early Childhood Teacher Education

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Abstract

This paper aims to investigate the affective flows and material intra-actions that unfold in micro-moments in Early Childhood Teacher Education (ECTE) within observations of student teachers' cooperative work. Putting to work Haraway's SF philosophy (1997, 2004 and 2016) we work towards reconfiguring the primacy of critical reflection, and the cultivation of reflexive practitioners by troubling pedagogical practices such as groupwork that claim to generate critical reflexivity. We ask what else gets produced during groupwork and argue that diffractive pedagogy might open up possibilities for student-teachers to move beyond a narrow concern with critical reflection. By playing with rhythm and plasticity we stretch established ideas about ECTE and offer diffractive pedagogy as a slippery, contingent, relational, emergent, speculative and ultimately less certain concept than critical reflection. Introducing diffractive pedagogy into debates about ECTE offers a generative rupture; an opportunity to extend conceptualisations and practices.

Key words: Groupwork, Affect, Reflection, Diffractive Pedagogy, Carrier-bag-practices.

Introduction

In Norway, universities aim to offer rigorous, academic, high quality ECTE to ensure students develop skills and abilities for professional ethical reflection in educational work with children (Ministry of Education and Research, 2012). To be trained in cooperative learning, for later teamwork in kindergartens, is a core method employed in ECTE (Stave et al., 2012). Teamwork is central to practical training in kindergartens and also features in university programmes. However, according to an evaluation report of ECTE (Bjerkestrand et al., 2016), groupwork and other varied learning activities are given less priority; large auditoriums filled with hundreds of students are more cost effective and so privileged over groupwork. Bjerkestrand et al. (2016) claimed that teaching student teachers in large classes demands less of students as they settle into a passive mode of engagement with only a very small minority of students actively asking questions. Furthermore, groupwork makes demands of student teachers; according to Alexandersen, Nakrem, and Kvello (2014, p. 68) around half of all students in their study had experienced conflict in groupwork. Others report that student teachers do not necessarily know how to initiate, participate in, or make use of cooperative and/or reflexive processes in groups (e.g. Chang-Kredl & Kingsley, 2014; Katsarou & Tsafos, 2013).

In this paper attention is focused upon micro-moments when student teachers in ECTE are working together. We analyse these micro-moments in order to chart the affective and material intra-actions and diffractive patterns that appear within groupwork encounters. Viewing groupwork as a mesh of interwoven affects, generated through intra-active moments presents possibilities to view student-teachers differently. We will go on to suggest that stepping back from a position as the all-knowing (teacher-educator, researcher) and being open to the not-yet-known can create exciting possibilities to reconfigure what might be meant by pedagogy in ECTE. It is important to note the centrality of ‘critical reflection’ to ECTE as set out in policy (Ministry of Education and Research, 2012; Moxnes, 2016, 2017). Furthermore, critical reflection is important in ECTE because it ensures that the subject is connected to discursive and cultural understandings, and by exercising critical reflexivity student teachers are enabled to understand personal actions (Fendler, 2003; Lenz Taguchi, 2004; Søndena, 2002). However, student teachers have been found to lack the capacities needed to exercise critical reflection, which is further exacerbated because critical reflexivity is rarely explicitly explained or prioritised in ECTE programmes (Lafton, 2018; Moxnes, 2016, 2017; Søndena, 2004). Rather than seeking to identify evidence of ‘critical reflection’ we want to be open to what else might be going on in groupwork encounters. We work with the concept and practice of diffraction (Barad, 2007, 2014; Haraway, 1997, 2004) as an alternative approach to critical reflection. We go on to argue that by working with practices of diffraction it is possible to reconfigure ECTE teaching practices.

Working with Haraway’s (2016) SF philosophy requires that we be present and attend to microscopic utterances, to enable moments to be viewed and sensed differently; more intensely and thereby consider groupwork more expansively. These micro moments are tiny happenings within ‘everyday activities’ (Davies, 2014, p. 15) that allow for connections between human action, affect, and material intra-action to be traced. These events also invite groupwork to be rethought as more than just a place for student reflection in ECTE. This paper attends to the uncertainties about groupwork, student-teachers’ obligations towards their studies, circulating affects, and how materiality within and of the room becomes implicated.

According to Haraway (2016) ‘the risk of listening to a story is that it can obligate us in ramifying webs that cannot be known in advance of venturing among their myriad threads’ (p. 132). Observations of groupwork are seen here as items within a ‘carrier-bag practice of storytelling’ (Haraway, 2004, p. 127). The carrier-bag metaphor emphasises the comingling of unexpected partners and irreducible details put together to generate new ways to grapple with old ideas – in this case about groupwork in ECTE. We do this to create ‘just the kind of survivable stories we could use these days’ (Haraway, 2004, p. 128). Stories that allow space for un-thought ideas that might take the concept of ECTE pedagogy to other places. Carrier-bag storytelling invites us to gather together arresting images and micro moments from student-teachers’ groupwork. The groupwork sessions were integral to ECTE, initiated by teacher educators and requiring the active participation of student teachers. Teacher educators provided photographs to provoke discussion within each of the groups. Throughout the groupwork sessions though other photos, presented by the student-teachers also found expression and provided the basis of further (unintended) discussion. These intentional and unintentional images worked with the ‘data’ to generate unexpected strings in a game of cat’s cradle. Working with Haraway’s SF philosophy allows for seeing/thinking/speaking differently. In what follows, string figuring and carrier bag practices are explored to reconfigure ideas about groupwork and to argue for diffractive pedagogy in ECTE. Some passages are presented in italics; which can be read as diffractive moves throughout the article.

SF philosophy, cat’s cradle and bag-lady-carrier-bag practices

Haraway (2004, 2016) offers SF as a research philosophy, inspiring researchers to make use of methodological entrances and experimental practices (Blaise, Hamm, & Iorio, 2016; Taylor, Blaise, & Giugni, 2013, Osgood, 2019). We take SF-philosophy as both a concept to understand research, and a

tool to assist us in analysing groupwork processes. SF is seen here as the idea underpinning the practice of *string figuring*, although Haraway (2016, p. 2) stresses that SF is also *science fiction*, *speculative fabulation*, *speculative feminism*, *science fact* and *so far*. Through our string figuring we attempt to embrace these multiple and overlapping frames. Haraway (2016) describes SF as both a practice and a process, as a philosophy of staying with the trouble, and string figuring as ‘a method of tracing, of following a thread in the dark, in a dangerous true tale of adventure’ (p. 3). As a methodological entrance this is about grappling with, rather than generalising from the ordinary (Taylor et al., 2013). Haraway (2016) stresses string figuring is not tracking, but rather it is about what unravels and reforms from the knot when strings are pulled. Working with string figuring is a co-constituted, relational, and generative practice.

Haraway’s (2004, p. 127) philosophy of ‘carrier bag practices of storytelling’ provided an entrance from which to engage with SF as it shapes groupwork in ECTE. This philosophy (and metaphor) is about telling tales as woman-gatherer, working at collecting stories, or images and placing them in an imaginary carrier-bag. It requires the researcher to become a bag-lady; collecting and mapping images and stories about student-teachers doing group work, attending to materiality, interconnections and intra-action with other research and being attuned to the affective flows. It requires that space be created for different images and stories to interweave through string figures, to create new thoughts and understandings of educational practices in ECTE. Such stories do not need continuation, beginning or end, they are moments from everyday practice, woven together with other elements in to a cat’s cradle (Haraway, 2004).

The string figure game can only be played through bodily actions and is therefore a dynamic map that cannot trace a single lineage (Bates, 2015, p. 18). It is created with different thoughts, ideas, and plays with both known, not known and potential practices (Osgood & Guigni, 2015). When we play a game of cat’s cradle, we pull strings. Strings form knots and when other players play, the strings change from line to knot; knot to line, line to knot. As Osgood & Guigni (2015, p. 350) explain: ‘Cat’s cradle collects and becomes in threads of assemblages of valid knowledges. It counts’. The string figure game gives and receives different patterns, sometimes dropping a thread and sometimes creating new patterns. For Haraway (2016), reconfiguring is about opening-up ideas of what the future might bring, moreover, to take an active part in changing the world. Knots through string figuring create moments for reconfiguration. Figuration is also metaphoric; concerned with that which haunts us but sits just out of view, impossible to pin down. What MacLure (2013, p. 172) terms ‘uncomfortable affects’, affective flows that surround and pierce rational arguments and act as an inspiration to work with more than only textual representations of a given issue. String figuring urges us to grapple with images, senses, sounds, that stick to bodies and minds.

Sitting in a corner watching groupwork

A growing body of feminist scholarship, engaged in experimental modes of research, foregrounds a concern with materiality and affect (Blaise et al., 2016; Hohti, 2018; Holmes & Jones, 2016; Osgood & Robinson, 2019; Sandvik, 2010; St.Pierre & Jackson, 2014; Taylor et al., 2013). The potential of taking up creative and uncertain research practices demonstrated by this growing field of enquiry acted as an inspiration to investigate what carrier-bag practices of storytelling (Haraway, 2004, p. 127) might offer to this study. Attending to micro-moments (found within film-cuts from classroom observations) created opportunities to become open to the known, unknown and not-yet-known about groupwork and created exciting possibilities to extend ideas about critical reflection in ECTE. The groupwork was initiated by teacher educators and involved four-to-six student-teachers collectively discussing matters of educational concern. The students agreed to allow Anna to video-observe their meeting. The study began as a search for reflection in student-teachers’ groupwork; and quickly the research ignited old habits in a search for the familiar. However, embracing carrier-bag-story-telling as method presented richly complex possibilities when other, non-human, and more-than-human elements become as significant as the human actors within the classroom. Blaise

et al. (2016) stress that the onto-epistemological shift from representationalism to tentacular thinking is 'not easy as it entails leaving behind cause-and-effect linear thinking and predetermined and contained reasoning' (p. 33). Haraway (2004, 2016) provides opportunities to work through how we might challenge habitual practices and familiar understandings. To do such work is demanding, since it requires we take on a different worldview, one that involves troubling established ideas, subjectivities and insists that we sense differences at an affective and corporeal level.

Inspired by MacLure (2013) this research is shaped by curiosity, speculation and wonder. We have become attuned to the affective flows and material intra-actions that unfold in micro-moments in ECTE; and wonder how this might provide alternative ways to encounter student-teachers and their struggles in processes of becoming professional. Materiality and affect are interwoven in the films, but they also circulate outside of the room where the group-activity occurred. String figuring is about 'pastpresent' presence, or the idea that the future is already present (Haraway, 2010). When working with string figures and carrier-bag-storytelling, the past and future are present, side by side manifesting through affects and material-discursive processes. The process of gathering research materials occurred long before the project started, continued through the filming of students doing groupwork, and continues still through the process of writing this paper, and it continues. This mode of enquiry has no beginning or end; always in the middle, or So Far, within the on-going-ness of string figuring, continuously picking up threads (Haraway, 2016).

A modest witness in the field

Teacher educators from four universities across Norway granted access to their classrooms, and created opportunities to meet student groups, and for a researcher to be in situ for just over a year. The length of time Anna spent with each group varied, for example, one group participated in seven meetings over the year, meanwhile another group met only twice, and the third group met three times. Participation was voluntary which accounts for the variation, some students opted out. Having identified the three groups, times for filming and follow up group-interviews were agreed (Haglund, 2003). When filming Anna was present, observing, but also participating and engaging with events that unfolded. Anna considered herself, to be what Haraway terms, a 'modest witness' recognising that as an observer the researcher is always entangled and contributing to the ongoing games of cat's cradle that play out within ECTE groupwork encounters. Modest witnessing requires that the researcher is a player, implicated and imbricated in the unfolding research event as such it requires that the exercise of heightened ethical responsibility (Blaise et al., 2016; Haraway, 1997, Osgood, 2019) to all elements of the assemblage.

Affects and materiality in the groupwork-room

When I (Anna) was in the group-room observing and film-recording the student-teachers, the materiality of the room, its dimensions, light sources, fixed tables, bench rows, chairs, power sockets, air conditioning, students' possessions, laptops, and instructions from the teacher educator were all drawn into sharp focus. Several months later, re-encountering the groupwork scenes re-ignited affective charges. It was whilst sitting in an office, scanning through the video footage, again and again, that the force with which matter mattered was sensed, again. The films contained many sequences where materiality intra-acted with the student-teachers; extended periods of time where group assignments were read, mobile phones or pens fiddled with, or laptops booted. Other film sequences contain elements of interactions where student-teachers sit on chairs, chatting about practical experiences from kindergartens, or engaging in study related conversations whilst flicking through notebooks, chatting about life in general- outside of the classroom; and snippets of film captured sitting, silence, stillness. At times, the scene changed to become dense, messy, where different elements clotted together. Describing such congealed and messy moments became a point of departure for detecting affective flows and material intra-actions. String figuring is active, it is a 'passing on and receiving, making and unmaking, picking up threads and dropping them' (Haraway,

2016, p. 3). Making, remaking and unmaking groupwork in ECTE is a methodological project, involving the human (student-teachers), space/place (the Norwegian classroom) and matter (the liveliness of routine objects). Remaking ideas about group work, critical reflection and ECTE involves playing a game of cat's cradle together so as to configure patterns that cannot be readily explained. It is a study of seemingly unremarkable and routine events that can tell different stories about ECTE.

Diving into a bag-lady-carrier bag

Rooting around in the bag presents the following micro moments from a film of a groupwork sequence involving four students, affects and materiality. A micro-moment, with no beginning or end; an event from everyday practice. The teacher educator has instructed the group to discuss some photographs. These images were photos taken by student-teachers of themselves as part of the groupwork. After taking the photos, the students discussed what their photos expressed and possible interpretations:

Helle turns towards Inger to ask for her opinions about the picture they have decided to discuss. Inger is clicking her pen into her palm. Squeezing the small mechanism on the pen up and down.

Click, click.

She replies: 'I don't know, but I think it expresses...' Inger is silent... five seconds pass...

click, click, click, click, click.

The rest of the group is patiently waiting. Inger asks the group about something else, Helle and Jorun reply, Karin looks at her mobile, and scrolls down the mobile screen. Silence. Then Inger says: 'I think that ...

click...

... it (the picture) expresses helpfulness.

The clicking pen in Inger's hand is now acting more intensely and Karin, interrupts 'You think it expresses helpfulness. You think!'

Inger replies: 'But, aren't I suppose to say what I think?' Karin continues, while crunching her mobile:

'What you see! You cannot say that you think! It sounds like you are thinking for somebody else'.

Inger: replies: 'But I know what I am thinking!'

The pen now wields from side to side in Inger's palm.

Karin shrugs and replies 'ok'.

Pulling strings

The rhythm from the clicking pen is what first strikes. It strikes again when re-watching and again later when writing and re-reading the micro-moment. The sound and rhythm strike us as a Deleuzian refrain (Deleuze and Guattari, 1987, p. 404), which is taken up by Jackson (2016, p. 1), and invites us to view repetitious and rhythmic patterns of sound in the group-room, as refrains. The clicking pen is creating repetitive movements, a refrain. A refrain creates order in chaos, or support in uncertainty, and the pen gives the sequence an order until the rhythm changes and it starts to wield in Inger's

hand. Rhythms are born from chaos suggests Deleuze and Guattari (1987), and the rhythmic sound from the material pen squished in Inger's hand participates in the micro-moment to increase the chaos in the situation. The movements the pen makes in Inger's hand, the way her palm impresses the pen top against the table, creates a rhythm, it repeats itself regularly as a refrain in a song. The pen-hand is creating a repetitive movement connecting the hand with the table the pen squeezes against and back into the palm. The rhythm is affected and affects.

On this particular Thursday in September 2015, other rhythms also affected the student-teacher groupwork. The scene is pastpresent (Haraway, 2010) in that it connects the past, present and the outside world to the group-room. Not only to futures as kindergarten teachers but the immediacy and on-goingness of the outside world both infects and affects the groupwork in surprising ways. The global refugee crisis hangs in the air. Karin repeatedly suggests ways to connect the demands from the ECTE programme with the situation of child refugees. She swipes her mobile phone and refers to different events, specifically the now infamous image of a refugee toddler fleeing Syria found washed up on the Turkish coastline (<https://www.theguardian.com/world/2016/sep/01/alan-kurdi-death-one-year-on-compassion-towards-refugees-fades>) The affective charges of the image present the group with a sticky knot with which to grapple. Karin repeatedly suggests that connections must be made, creating another, less certain refrain throughout the groupwork. Embracing Haraway's SF in the form of speculative feminism and applying it to this sticky knot raises unsettling ethico-epistemological responsibilities within this micro-moment. Speculative feminism challenges us to stay with the trouble of the affective charges brought about by the intrusion of the photo-memory to the immediate pedagogical task at hand. It underlines our worldly connections (Haraway, 2016).

According to Jackson (2016, p. 2) the refrain marks a territory, a fragile territory, easy to break. The rhythm of the pen, the pen and Inger together create a territory. Karin and her mobile phone and the story about the dead child is forming another. A space in-between the materiality and the other students, questions with no answers, Inger struggles with what to say, and Karin clenching the heart-breaking image. Like a space meshed together with materials, sounds, bodies and movements (Jackson, 2016, p. 4), the territory can provide time to think, time to act differently. Time to let feelings and thinking diffract into new patterns (Haraway, 1997). Both the story and the shelter gives 'passages for a praxis of care and response' (Haraway, 2016, p. 105), as the ethics of speculative fabulation and speculative feminism in the SF philosophy suggests. Following Deleuze and Guattari (1987) a territory has the interior zone of a shelter (p. 366). A shelter is not necessarily physical, it consists of ideas, thoughts and activities in process (Jackson, 2016, p. 6). The rhythm of the clicking pen, the weight of a mobile phone in a hand together construct territories of ideas and thoughts forming and shaping in progress. The story of a dead-boy-refugee-body reinforces the chaos through uncomfortable affects that insists upon drawing the world outside into the group-shelter.

Delving further into the carrier-bag

Rhythm figuring... Rhythm of a pen knocking against a table... Rhythm of waves breaking against a beach... rhythms that bring forth another image, another thread from which to reconfigure ECTE and to consider how critical reflection might be rethought. A photo from an ice-bathing event.

It is freezing cold. Snow. The feeling of standing on the steps knowing that one more step down will take me into the water. Do not know what the slush I am putting my feet's into is. Is it ice? Not sure ... The feeling of not feeling – the feeling of swimming in ice-cold slush. Running back up. Laughing hysterically. The feeling of blood rushing through my veins. The feeling of how nice it is to be back up - alive. The feeling of being wrapped in warm fleece blankets and getting a hot mug of coffee. Feelings of being daring, hazardous, mad and among friends.

Furthermore, both the micro moments: observing student-teachers and the ice-bathing sequence resonate with what Ringrose and Coleman (2013, p. 126) term 'affective relations between bodies'. This includes feelings among different material bodies, such as the pen/hand or body/slush. Ringrose and Coleman (2013) suggest affective relationships as the complexity in trust and honesty. Affective flows and forces activate what Manning (2008, p. 8) describes as 'work [that] becomes a thinking-feeling', and what Barad (2007) describes as entanglements. Entanglements of thinking-feeling-doings, where affective flows make these inseparable as thinkingfeelingdoings.

When student-teachers gather together for groupwork as part of their education their meetings are about taking part in an affective relationship, where they are together and fragile. Depending on trust. Karin's interruptions. Inger's reply. They share a history as co-students. The affective relations between bodies makes it possible to discuss what is going on as something that occurs between the bodies of group members before they enter the room. Their bodies might already have constituted different affective relations. They know whom and what they trust, and their meeting is affective and affecting. The feelings of foot-on-ladder ready to pierce through a slushy surface. The student holding back and not piercing through the silence, respecting peers requires both time and space. The constitution of a collegial relationship, where each is taking turns, and where they try out roles of becoming professional leaders, asking critical questions to colleagues. Asking critical questions as taking one more step on the professional ladder, not knowing what the question will bring.

Other 'unexpected partners and irreducible details' surface in our porous carrier bag (Haraway, 2004, p. 127). The figure of the displaced child takes us to Atwood's (2004) dystopia from the novel *Oryx and Crake*, where the protagonist Jimmy, once fearing that some lines have been crossed and some boundaries transgressed, sees something he does not want to see, and is wondering 'how much is too much, how far is too far?' (p. 242). Anna is transported back to a time, to a memory, to a dystopian micro-moment at winter-market in Kongsberg, Norway. A dancing baby-doll entrapped within a box. The doll dances, the dance disturbs. The dance is not that which corresponds to baby-dolls. This dance was intended to be erotic, - this is both too much and too far. Stuck, paralyzed, repulsed, angry, disgusted, curious and sickened – a cacophony of uncomfortable affects.

Friendly environments, such as a winter market or peer group discussions contain moments when bodily affects shape the event. Bodily reactions: heads facing downwards, eyes looking away, hands fumbling, hearts racing, stomachs churning. Situations are fragile and bodies become figurations of criticism. According to Hohti (2016) affects perform an important role in entanglements 'through transcendent categories, connecting things, people and ideas, setting them in motion and pointing at combinations that are sometimes odd and surprising' (p. 79). The student-teachers were invited to participate in collaborative analysis during a group interview. Film footage from the group work was shown and the student-teachers were invited to share their reactions and reflections. The misaligned impressions of body and language were the focus of discussion in the group-interview, the students were quite open and confirmed these situations:

"Karin is quite abrupt".

"I easily get annoyed at Helle, because she often...."

"I got very confused and irritated at Inger, because I thought she did not understand what we were supposed to do".

Here the students had no hesitation in being direct and critical about each other's actions and justifying their reactions. Here, in this moment, bodies and words worked together, made possible by the openness created by a group-interview, an encounter with no firm objectives or intended outputs, only an invitation to share thoughts and ideas about what gets produced through ECTE groupwork designed to foster critical reflection. Tracing back to Alexandersen et al's (2014) claim

that groupwork generates conflict, this way of analysing the situation indicates that groupwork does so much more. It does much more when students are understood to be weaving a cat's cradle of different ideas of becoming professional, when they are given safe environments, and an invitation to excavate the various layers of what happened, and to open up for multiple lines of thought, feelings and ideas. There were also moments of self-critique, like *"I liked Karin's idea about refugees, I just don't understand how we could use it"* during follow up interviews when students more openly shared experiences and thoughts. When watching the films from the groupwork together we had to cluster around the small laptop screen to see. The laptop, the table, our bodies, and the closeness between us all created difference. This new setting allowed us to laugh, share thoughts, comment and talk easily together. Like sitting on the pier drinking coffee, as happy survivors.

Entering plasticity

Atwood's (2004) Jimmy, or Snowman surviving on memories of his past, offers a useful connection to contemporary Early Childhood Teacher Education. In Norway there is demand for advanced thinking skills such as reflection and reflexivity in ECTE (Ministry of Education and Research, 2012; Stave et al., 2012). The limitation with reflection though, is how easily it can lead to mirroring instead of generating new thought. As we have argued elsewhere (Moxnes & Osgood, 2018) diffractive pedagogies present exciting possibilities for ECTE. Haraway (2004, p. 70) wrote that diffraction is about mapping interferences not about reproduction, which in the context of ECTE poses a direct challenge to traditional constructivist ideas. Reflection and reflexivity are deeply rooted in education and constructed as essential for the development of learning. In effect students are expected to mirror sameness (Lanas et al., 2017; Søndena, 2002), or the knowledge and behaviour of others (with greater knowledge). Such technicist approaches in education reinforce the idea that there is a singular and correct way to do and be a learner; these ideas are encapsulated in ECTE programmes and pedagogies that hail reflection and reflexivity as the key to becoming an effective teacher. The generative potential of diffraction for ECTE is exciting and important. Diffraction insists upon being attentive to difference in knowledge-making processes (Barad, 2007; Bozalek & Zembylas, 2017). In our search for difference, micro-moments offered a rich site in which to search for ways in which to produce new knowledges, rather than fall into the trap of recognition and re-presentation.

We have attempted to argue that unanticipated micro-moments within groupwork act as a rupture to the orthodoxy surrounding critical reflection and the mirroring of sameness. Within the group the student-teachers are peers, at an equivalent stage in their training; and a model for how the group should function is unclear – but it is *not* about mirroring back established ways of thinking or behaving. It creates space and opportunities for uncertainty and the relational generation of new thought. In the event above, the group has been instructed to discuss photos, explain their ideas to each other and then connect that explanation to theories about kindergarten practice. Another photo, the one of a dead boy disturbs habitual thoughts of playful happy kindergarten-children. The photo diffracts the process, introduces uncomfortable affects and takes the group to unexpected places as they grapple with what the images do to them, and what they might do with what it does (Osgood & Scarlet, 2015).

In a diffractive move, we, the authors are taken to an ice-slush knot. The memory of the frozen water, slippery ice-cold ladder, slush, frozen, Nordic waterscape...What is down there? What lay beneath the ice-slush? Plastic! Plastic beads! Plastic bags! Plastic waste... To the ECTE classroom: plastic pens, plastic bottles, plastic chairs...To the kindergarten where playgrounds are covered in plastic turf, soon all football fields and other lawns in Norway will be green plastic too. Dressed in plastic to keep out the Nordic chill, zip up the fleece jacket, wrap the acrylic and polyester fibres around our necks, fingers, toes. Scientific research tells us that with the washing of such fabrics 1900 small plastic particles are loosened and rinse into the water treatment system (Opstad & Hasaas, 2017). Plastic microbeads added to scrub creams, toothpastes and cosmetic products rubbed into our bodies. The treatment system cannot filter out these tiny particles (Sundt, Syversen, Skogedal, &

Schulze, 2016). In to the oceans, consumed by marine life, entering the food chain and into humans and other species. We are not separate from the world but entangled in every particle, every atom. Haraway (2016) describes this as ‘becoming worldly with’, and as such we have an ethical responsibility to respond to each micro-moment, each entanglement.

This figuring leads to another knot: to shock-absorbing materials in kindergarten playgrounds. The shock-absorbing material might be sand, or solid rubber mats often made of granulates from recycled car tyres. The car contains a whole range of environmentally harmful substances recycled together with the tyres (Duale & Brunborg, 2011, p. 3). From car to scooter... A story published in the Labour Union magazine *Utdanning* tells of a group of kindergarten children on play excursions to a nearby forest. *The children bring equipment so they can remove rubbish, and learn about the creatures living in their forest. On an excursion the children discover parts of a scooter - too big for children to remove, the situation causes great distress which is alleviated when a local company removes the scooter parts – the children burst into rapturous applause and shout ‘HURRAY’* (Alnæs, 2017). They care!

Following strings deeper into dark knots

Affects and materiality continue to entangle with the groupwork situation. Watching the groupwork, students touch their mobile phones, water bottles and snuffboxes. There is a sheet describing the group assignment, photos, books, pens; all entangle and intra-act. As Alaimo (2008) explains ‘the material world continually intra-acts in ways that are too complex to be predictive in advance’ (p. 259). The world materialises through photos, through corporeal material-discursive intra-actions, through the rhythm of a pen affecting a situation. In how they try to challenge each other, and exercise plastic thought as becoming kindergarten teachers. The material world as active producer of knowledge increases the complexities to understanding this groupwork. Plastic, pen and a mobile phone with access to a photo of a dead toddler, tells different affective stories from this clotted, sticky moment.

Furthermore, Bennett (2010) describes the power in affect as impersonal, since it is not transpersonal, nor intersubjective. She clarifies that impersonal affect is not a spiritual force, it is simply about affect created in meetings with materiality (p. xii). According to Hultman and Lenz Taguchi (2010) can we ‘never reflect upon something on our own; to reflect means to inter-connect with something’ (p. 536). Reflection occurs between different agents, and we, as humans, need something/someone to think with, something/someone that affects us. Something like materiality, like a bottle, a clicking pen, and multi-layered stories. Something that halts us, ruptures and displaces our thoughts and senses: a photo of a dead refugee child body washed up on the shore, accessed via Facebook, works to transport a group of students to the world outside a university classroom, the refiguring induces intensities, uncertainties and takes them somewhere else where thoughts about early childhood are opened up.

Click

Another **string** with which to reconfigure... plasticity... offering something more, a point of re-entry and opportunities to re-figure the knot.

A photo of a plastic bag, swimming like an iceberg in water takes us to a beached and sick Cuvier Beaked whale, on the western coast of Norway.

A wayfarer, not spotted in Norway before, the Cuvier Beaked whale is washed up on the shore.

Now here, not there, the sick whale is euthanized by vets; made sick by plastic. Not microbeads, but plastic carrier-bags. Over 30 plastic carrier-bags found inside the whale. Images of the perished whale

are everywhere (e.g. <http://www.telegraph.co.uk/news/2017/02/03/whale-found-dying-coast-norway-30-plastic-bags-stomach/>).

Dying whales, micro-bead plastic, children's entanglements with the environment; plastic: for playing, for dressing in, swimming with it and eating it.

This cat's cradle of irreducible partners pitted together in a porous carrier-bag (Haraway, 2004) offers much if we are to rethink ECTE and the place of reflection. Thinking with the human, more-than-human, and other than-human opens-up possibilities hitherto unimagined. Such stories haunt, trouble, animate and provoke; they give us something to think/feel/do pedagogy with. We must think, stresses Haraway (2016) in *Staying with the trouble*: '[t]hese are the times we must think; these are the times of urgencies that need stories' (p. 37). These are not easy stories, they generate affects within us, they force us to think more deeply about our place in the world, our responsibilities, our connections. The beached whale story, the beached toddler story, groupwork stories, create ruptures and opportunities to push ideas about what ECTE might be. Such stories can push us beyond a quest for critical reflection; they attest that criticality and creativity can emerge from practicing diffractive thought in ECTE pedagogy.

Where do we go from here?

Studying the affective flows and material intra-actions in groupwork reveals that student-active learning strategies can generate a depth of engagement for worldly justice that standard lectures fail to provide. The conflict Alexandersen et al. (2014) identified can be a generative force in an diffractive pedagogy. Groupwork displaces the preoccupation for critical reflection as a form of mirroring. Instead, when we as authors work with diffractive patterns, we suggest that students are required to negotiate their ideas and confront discomforting uncertainties. The affective forces are productive as they create trouble within the group. As the string figure game unfolds, through a series of sticky knots uncertainty in the groupwork becomes generative. Groupwork and other pedagogies that insist upon active student engagement are not highly prioritised, and often it falls to student-teachers to self-organise. Student-active teaching methods are threatened by neoliberalist ideals, which promote the most cost-effective approaches to ECTE. Working with diffractive practices such as bag-lady-story-telling forces students to engage with messy realities and so think more deeply about their entangled place within the world and their ethical responsibilities. We suggest that groupwork connects past/present/presences to educational related questions, not through written instructions but through student-teachers' engagements with past, present and future lives as becoming teachers.

SF-philosophy and string figuring practices present sticky knots with which to think deeply about ordinary, everyday happenings and their interconnectedness to dramatic, traumatic worldly events. To discuss students' groupwork as entangled with environmental horror figures is anxiety inducing. It leaves residues of uncertainty and presents endless troubling questions. Questions about how we prepare student-teachers for life in the post-Anthropocene. How far do we work with worldliness in our teaching? The aim we are told (Ministry of Education and Research, 2012) is to prepare kindergarten teachers for their work with future generations of children but what do we give our students to think with or reflect upon? And, how do we work to support students in activating their critical thinking?

To the worm:

Galleria Mellonella: ...a plastic carrier-bag eating wax worm which transforms plastic into ethylene glycol (antifreeze) (Schlanger, 2017). Frederica Bertocchini, a research scientist at the Spanish National Research Council discovered that this small worm is biodegrading polyethylene (CSIC, 2017). This small companion species creates hope. It will probably not

eliminate the micro plastic belt in the Pacific, or plastic mountains in African villages. ...But maybe, one day...

Diffractive pedagogy can extend ideas about kindergarten teacher education that are less certain but more hopeful, which generate more strings with which to further reconfigure groupwork and other creative and uncertain practices in ECTE. Could groupwork shaped by embodied-affective methods find expression in ECTE programmes? What might be produced if student-teachers and educators worked closely together on projects driven by affect? With a concern for worldliness? By recognising themselves as relational pastpresentpresences together? What might this reconfiguring of the philosophy underpinning ECTE pedagogy make possible for the educational and professional lives that unfold in kindergartens? What if ECTE in university departments were modelled on kindergartens with groups of children coming to join in the SF game of reconfiguring what we think we know about teaching, learning and being in the world? To thinkfeeldo and activate a diffractive pedagogy.

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