Collaboration, movement and change: An intra-active action research approach

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Abstract

This article elaborates an intra-active approach to action research, with examples from a recently started action research project carried out in collaboration with three preschools. The aim of the article is to contribute to the discussion about how practice-based research for change can take shape. Therefore, these questions are asked: Which concepts are central and what is produced in intra-active action research? Which potentialities for change are enabled via an intra-active approach to action research? New materialism theories, starting with Barad, are used to rethink action research, focusing on collaboration, movements, and change. An analysis workshop within the project, starting in circular and horizontal movements, inspired by Deleuze and Guattari through the work of Lenz Taguchi, is revisited. The intra-actions in the workshop produce both generative and undermining processes. Therefore, the intra-active action research approach implies that staying in the complexity of practices, rather than seeking to reduce the 'messiness', holds potentialities for change that unwind from the middle.

Keywords

Action research, collaboration, intra-active, new materialism, rethinking

Introduction

The aim of this article is to contribute to the discussion about how practice-based research for change can take shape by thinking design of an action research project with new materialism theories. These theories are used to stay in the complexity of the world and recognise it as an important starting point to formulate relevant questions, find new solutions and create change (cf. Juelskjaer, 2020; Lenz Taguchi, 2010). In line with that, this article focuses on the methodological considerations and implications involved when rethinking action research and performing intra-active action research. More specifically, these questions are asked: Which concepts are central and what is produced in intra-active action research? Which potentialities for change are enabled via an intra-active approach to action research? These questions emerged as central in relation to the design of a research and preschool development project in which three preschools participated.

The term 'intra-active' comes from Barad (2007) and is used to designate processes in which different materialities, humans and discourses constantly co-produce each other in their encounters. In contrast to 'inter-actions', that occur between two separate and individual entities external to each other, in the case of 'intra-actions' it is not possible to make a distinct separation between the entities involved. Intra-actions, together with other concepts from new materialism theories, have been used within the field of early childhood education and care (ECEC) over the last decade (cf. Hultman & Lenz Taguchi, 2010). These perspectives have contributed to asking new, alternative questions about what preschool education and research within that field could be and how it could be done. Lenz Taguchi (2010) explains that "[b]inary divides structure our thinking in simplifying and reductive ways – good/bad, mind/body, theory/practice – where one quality excludes the other and makes mixtures as well as states of both-and and in-between impossible" (p. 20). The division between practice and research could be added to this enumeration, or seen as a part of the practice/theory division. In relation to preschool practices, this division reproduces a power relationship, in which academic knowledge is separated from practical knowledge and valued higher (Lenz Taguchi, 2010). This means that practice is always affected by the arrangements made around it (Kemmis et al., 2014a), defining what can be said, done and related to. Which also implies that going beyond these divisions requires other concepts.

Action research is often presented as a solution to bridging the gap between research and practice (Somekh & Zeichner, 2009), referring both to the form of the research, with participation and democracy as leading values, and that the content is defined as relevant to the participating practice. However, Noffke (2009) points out that "[a]ction research, un-problematised in terms of its goals, can act to reinscribe existing practices rather than create new forms, which focus on social justice" (p. 20). This underlines the importance of an active and ongoing discussion about objectives and means throughout the whole process. Following Somekh and Zeichner (2009),

who report that "action research theories and practices are remodelled in local contexts and used to support educational reform" (p. 5), this article engages in a rethinking that also includes the often not questioned binary division between practice and research. Gunnarsson (2017, 2018), Gale et al. (2013), Kane (2015) and Strand and Sparholt (2017) all show that there are both challenges and potentials when engaging in rethinking and reconceptualising action research with new materialism theories. The method known as "material storytelling" is one example of how what Strad and Sparholt (2017) call "intra-action research" can be performed. In this article, I further elaborate on the issues suggested by previous rethinking and pick up the call from Kane (2015) to in collaboration play, both with concepts and in practice. Change and development cannot be achieved once and for all but need to be constantly in process. Mol (2002) argues that since reality is constantly shifting, we must stay with doubt and frictions, as that is the only thing to do.

This article will be organised as follows: firstly, the different *enterings* to an intra-active action research project are presented; secondly, I proceed to the elaboration and rethinking in and with intra-active action research, starting with collaboration, movement, and change, since these are central topics in action research; and finally, in the concluding section, various openings and potentials offered by intra-active action research are discussed.

Enterings to an intra-active action research project

Due to the complexity described above, action research can be understood as an approach in which critical examination and emancipatory efforts are combined, focusing on experimental trialling to bring about improvement and change. There are several possible enterings when attempting to rethink action research from a new materialism perspective. These enterings are produced through each other, showing the importance of multiplicity in terms of this perspective (Gunnarsson & Bodén, 2021). Three enterings are described in the following; these are not the only possible enterings but the ones I have chosen to act on and emphasise in relation to the purpose of this article.

Methodological enterings

Research from a new materialist perspective can be described as an assemblage: a composition, for example, of researchers, participants, and the research design, which constantly appears in new constellations (Masny, 2013). Many of the concepts, terms and divisions traditionally used in the structure of a research study are less suitable for new materialism approaches, since these approaches question the hierarchies, categorisations and frameworks underlying the Western scientific tradition (Lather & St. Pierre, 2013). Instead, post-qualitative research has developed a great deal of pluralism in relation to the choice of methods both for the production and analysis of data, insofar as they can be delimited as parts of a research process at all (Gunnarsson & Bodén, 2021). Additionally, action research challenges the traditional template for

research (cf. Kversøy, 2018; Somekh, 2005; Zeni, 1998) and it is claimed to be a different way of doing research. The radical standpoints in action research involve starting with and from practice and insisting that the researcher should be involved, thus abandoning the positivist ideal of a researcher standing on the outside (Kemmis et al., 2014b). The issue of being on the inside or the outside, sometimes both, is recognised in action research as a question of access, meaning-making and relevance (Somekh, 2005) that also has ethical implications. This view implies that rules and regulations are not enough to handle all the ethical situations in a research process. Instead of more rules, Bergmark (2019) highlights the importance of having an ongoing discussion about roles, expectations, and responsibilities.

To think *with* and to challenge thinking in relation to something, often called re-thinking and re-conceptualising, has become a new materialist way of dealing with methodological positions (cf. Lenz Taguchi, 2010). Provoking and challenging what are perceived as presuppositions is one central part of the constant development of a post-qualitative methodology (Gunnarsson & Bodén, 2021). This also means that methods cannot be fully established in advance but must be allowed to change, emphasising that everything is connected in a non-linear process. Following this "messiness", the next entering addresses the concept of practices in action research.

Entering with/on/for/through practice

There are multiple ways to state what a practice is and how it is demarcated (Nicolini, 2012). Even within action research, there are different ways to conceptualise practice. The Theory of Practice Architectures (TPA) is one way that has had increased importance in recent years (c.f. Kemmis et al., 2014a; Mahon et al., 2017). Within TPA, a practice is understood as a social and collective activity containing and connected by what is said, what is done, and what is related to – through *sayings*, *doings* and *relatings*, practice is affected by and affects external structures, also called *arrangements*. These arrangements: the cultural-discursive, the material-economic and the social-political, create the architecture of the practice. The arrangements constrain what it is possible to say, relate to and do in specific situations. Both different practices and arrangements are created in the analysis and are not to be understood as pre-existent but always as constructed (Kemmis et al., 2014a). In line with Barads (2007) thinking, I understand practice as something that is never fixed, always in a process of becoming and open for humans as well as other *materialities* to participate in with their sayings, doings and relatings, an understanding which will be further elaborated later in the article.

Action research is usually linked to research *with* or *for* participants and practitioners. Choosing this approach instead of doing research *on* or *about* emphasises togetherness and makes it clear that teachers are not research objects. Instead, teachers' experiences and reflections from practice are the very foundation of the process and the creation of knowledge (Rönnerman, 2011). To start with questions emerging

from practice is a foundation highly valued in action research (Rönnerman, 2011). It is seen as a way of distributing power, motivating, and strengthening participation. The origin of questions is problematised by Gunnarsson (2018) when making it clear that it is not simply a matter of the question coming from either one or the other part of a research project. Questions "arise in a joint wonder or problem that generates various questions through different meetings and relationships" (Gunnarsson, 2018, p. 72, my translation). This does not mean that all emerging questions need to be joint or shared. Within a practice there are always several practices; an action research project is a common practice but participants in a project are also part of other overlapping practices.

The specific practice(s) that I refer to in this article as illustrative examples when rethinking action research, is a preschool development and research project, Project Teaching, in which three preschools located in the northern part of Sweden are participating. This project is focused on teaching that takes place outdoors. Accordingly, I do not present a result from this project per se. Still, teaching as a phenomenon has been at the centre of the design of the project, affecting the considerations raised when rethinking action research. So, in the following, using an analysis workshop, we enter an entangled design for dialogues about teaching, both with the prevailing order and with/on/for/through the specific practice in Project Teaching.

Entering entangled design for dialogues about teaching

The choice of focus area for Project Teaching can be linked to the change in the preschool curriculum [Lpfö 18], implemented in 2019 (Swedish National Agency for Education, 2019), introducing the concept of teaching and emphasising its place in preschool education. Many preschool teachers show an ambivalence to the validity of the teaching concept in preschool education (Jonsson et al., 2017). Perceptions of *what teaching is* do not correspond to the preschool teachers' views concerning either preschool education or their profession. Several preschool educational reforms have resulted in changes that can be described as a movement from a care focus to a focus on learning and knowledge (Nilsson et al., 2018), a development that can be seen not only in Sweden (c.f. Haggerty et al., 2020). Traditions where a holistic view on care, play and learning in thematic processes are seen as characteristic of preschool education. Westman and Bergmark (2014) discuss how preschool teachers struggle to fulfil the teaching demands, while at the same time staying with what they consider important principles for children's learning. These struggles can be described as a balancing act and as resistance to ongoing changes of what preschool education should be.

In Project Teaching digital workshops, with focus on teaching that takes place outdoors, were conducted with each preschool in order to map and create starting points for the project. Parallel to this, I worked closely with three of the preschool teachers who were assigned to work with the quality development of teaching in this

specific preschool area. The meetings with this small group can be seen as a reflection and developmental practice within a broader preschool practice. In meetings with the small group, questions about different theoretical perspectives and how these perspectives affect teaching were discussed. An analysis workshop was arranged in which materials, such as mind maps and transcripts from the conversations in the start-up workshops with the three preschools, were processed within the smaller group. The idea was to work and play with theoretical concepts and conduct the analysis simultaneously (Kane, 2015). As a way of building connections and creating movement between the preschool reflection practice and research, methodologies familiar to the preschool practice were used in the analysis workshop, and not the other way around. Ideas and methodologies first described by Lenz Taguchi (2012) regarding pedagogical documentation were invited. With inspiration from Deleuze, Lenz Taguchi (2010, 2012) describes two movements, a circular and a horizontal, in the preschool's documentation work, which involves exploring and reconsidering methods from both researcher and practice perspectives. The two movements are described as separate but are, in fact, deeply intertwined. The circular movement can be seen as a gearwheel that cogs into the horizontal movement, two movements that mutually impact each other. The circular movement, which slows down and enables revisiting previous events, constructs a delay between perception, thought and action, carving out space for creativity (Lenz Taguchi, 2010, 2012). Additionally, the horizontal movement speeds up and smoothens out already made tracks, creating opportunities for new thoughts to arise. Prior to the analysis workshop, texts describing these movements and concepts connected to that were handed out to the small group of preschool teachers as preparation.

The analysis workshop started with creating a joint mind map on a whiteboard in the room, in order to visualise how to understand and use the concepts connected to the above-mentioned movements. Also, analytical questions with inspiration from TPA were written om the mind map, questions like: What can be said/done/related to here? What is not said? What connections and relatings are made? When new questions arose along the way, they were added to the whiteboard. As I see it, there are several similarities between the use of pedagogical documentation in preschool reflection practices and analysis done in post-qualitative research; the processes both refer to going deeper and exploring what is not obvious at first sight. In addition, these processes also serve retrospective purposes, wish to create movement, and are interested in what is produced in terms of connections and questions.

Choosing an entangled design involving the preschool reflection practice and research in an intra-active action research project when exploring teaching in preschool becomes a way of entering a dialogue with the prevailing order about teaching. The form of the research invites all participants to think and act critically in relation to the chosen content. Still, this approach has implications for design in different parts of the project, and therefore a rethinking is required.

Rethinkings in and with an intra-active action research project

Concepts can never be described once and for all; instead, they are changed with every attempt to described them. Nevertheless, concepts are important to think with when new and imaginary systems and conceptions are created (Deleuze, 1995). From what Barad (2007) calls an "onto-epistemological perspective", this is how knowledge and learning are produced when we are part of and intertwined with the world. The hyphen between ontology and epistemology underlines that it is impossible to distinguish the one who learns something from what is learnt; they are entangled. Material conditions and becomings arise as an effect of knowledge processes. In the next sections, collaboration, movement and change are used as starting points for exploring and elaborating central concepts and what is produced in an intra-active action research approach.

Rethinking collaboration

The question: "What is action research?" can be answered in different ways since there is a wide range of approaches to perform and relate to action research (Kemmis et al., 2014b). Nevertheless, collaboration is central since the core is the meeting between two knowledge fields or lands, one with a practical foundation and one with a scientific foundation. What collaboration is, or mainly, what or who takes part in collaboration, is one aspect that is challenged by a new materialist approach. Even though the arrangements in the theory of practice architectures (TPA) include and acknowledge material-economic dimensions, the materials are still seen as passive. The material-economic arrangements are mediated in the physical room (time and place) through activities and work (Kemmis et al., 2014a). In other words, the way a preschool environment is furnished and designed affects what kind of teaching and playing practices can occur there. The doings, sayings and relating hang together. It is not something new to propose that surroundings such as time, place and space affect the situation and learning. However, prior proposals assume that a human actor who uses the materials must create meaning. The difference between this way of relating to materiality, and a new materialist way of relating, lies in how they look at who or what is active in the situations. Materialities, anything and everyone can be understood as active and performative agents (Barad, 2007), which means that they are part of a production of power and change. In the intra-actions, the participating agents do not function to support each other. However, they make sense and materialise in collaboration with each other and are seen as material-discursive. This is also what makes materialities potentially powerful with the ability to change intra-actions. Kind (2014) states that: "Materials are not immutable, passive, or lifeless until the moment we *do* something to them; they *participate* in our early childhood projects. They live, speak, gesture, and call to us" (p. 865, italics in original). In research practice, this means that a research situation is never limited to human relations or effects on humans from the surroundings. Instead, the focus is directed towards what is produced in the encounters between such entities as researchers, participants, curriculums, iPads,

documentations, preschool traditions and assumptions about teaching. This approach to the ongoing and messy encounters is intra-active and denotes relationships where the incoming agents cannot be distinctly separated from each other because they affect and at the same time are affecting each other; these agents co-constitute each other. Barad (2007) emphasises that intra-actions are simultaneously material and discursive: "Discursive practices and material phenomena do not stand in a relationship of externality to each other; rather, *the material and the discursive are mutually implicated in the dynamics of intra-activity*" (Barad, 2007, p. 152, italics in original). From this follows the notion that in every meeting and event that occurs, I, as a researcher, become a performative actor, temporarily linked to other agents such as theories, empirical data, previous research, experiences, and policies (Gunnarsson, 2018). In the diversity of meetings and relationships that occur, various issues arise from common thoughts and problems that can be explored further.

Phenomena are produced in the intra-actions based on the circumstances they originated from, which also means that the circumstances are always phenomena of previous intra-actions. Barad (2007) terms the doings that produce the phenomenon for "apparatus". No apparatus should be seen as a physical thing, but as a material-discursive practice that acts as a delimiter of phenomena. The production is neither random nor built up by causal relationships; instead, phenomena, like collaboration, are created in apparatus through repetitions and orderings. This means that we can influence the construction of the apparatus and that the apparatus we choose to use will significantly impact the possible knowledge produced (Barad, 2007).

Intra-active collaboration in action – revisiting an analysis workshop

In the specific project involved in this article, my research interest in teaching in preschool participated in the encounters with the small group of three preschool teachers and their interests in teaching in preschool. During these meetings, thoughts, reflections, and struggles brought up questions, illuminated tensions and produced proposals. One of the proposals that I and the small group choose to act on was to develop an action research project. We do not share the same questions, but as we can see in our joint document, the questions are still evolving, connecting, embracing, and spurning one another. This could be correlated with the fact that we all share and create a common practice in the action research project, but that we are also part of different practices – though they overlap. Research interests together with the questions and musings from the three preschool teachers I have met has been how questions have arisen, intra-actively.

The first part of the analysis workshop, in which a joint mind map was created as a starting point, can be seen as a way of setting up the apparatus and starting negotiations about how to conduct the analysis; however, for every reading performed, the mind map evolved and developed. TPA offered help when the arrangements were used as places to pose questions from, showing that collaboration takes place among

various agents. When knowledge production is not only considered a human practice but instead is seen as "material practices of intra-acting within and as a part of the world" (Barad, p. 90), the active agents and the difference-creating processes they are involved in and co-produce become interesting. This implies that it is never entirely possible to plan what knowledge processes that will happen (Lenz Taguchi, 2012). However, it is possible to analyse the processes that occur and let those analyses be the basis for planning and organising the coming practice, which was done in the analysis workshop described above. In intra-actions, the materialities appear to be understandable to one another, regardless of human involvement. When studying intra-activities, this may not be fully understood, but it is possible to understand what intra-actions co-produce. It is amid these becomings that what Barad (2007) describes as "agency" emerges. As a force of doing or becoming, the agency is not a property that an agent has but something that appears in the process of becoming. So, when agents meet, they are in constant transformation, a movement to be understood without intention.

In the term "practice-based", the practice part targets the non-scientific practice, which in Project Teaching is a preschool practice, and in this article even more specifically a reflection and developmental practice within a preschool setting – a setting full of expectations and requests for improvement in the area of systematic quality work. These conditions followed those of us who participated in the analysis workshop and came to act in the process. It "materialised" us as "curriculum-wavers" and "quality-spins-supporters" when positioning everything that questioned the relevance of teaching as unwanted. The physical version of the curriculum was in fact waved in the air and fingers were pointing at pictures of a circle showing the process in quality work. These hybrids were produced in the messy encounters that occurred when collaborating intra-actively. The analysis became a way to undermine the assumptions about *the right way* to talk about teaching that was brought to the workshop. Accordingly, this suggests that the roles and positions of all participating agents need to be negotiated repeatedly as the process keeps on evolving, opening up for different becomings.

Rethinking movement

Action research is often represented by the almost iconic action research spiral (Kemmis et al., 2014b; McNiff, 2013). Kemmis et al. (2014b) describe the process as "a self-reflective spiral of cycles of planning, acting and observing, reflecting and then re-planning in successive cycles of improvement" (p. 2). The sketch of the spiral comes in slightly different forms (Kemmis et al., 2014b; McNiff, 2013) but consists of the same steps: map and plan for a change; create questions; perform and document actions; analyse, review and reflect on the actions and their experiences; draw conclusions for the continuation and re-plan, and then it starts over again, but from a position not exactly where it started but a bit upwards, creating a spiral shape instead of a circle. The steps are not considered to be understood as separate parts that

always proceed in a linear appearance, but as intertwined. McNiffs (2013) illustration of a spiral with several offspring spirals generated from the central spiral shows how several processes are active at the same time. Kemmis et al. (2014b) express a bit of self-criticism; in their earlier work they focused on the spiral as a model for action research. The problem with this is that there is a risk of reducing action research to a spiral-shaped method. Instead, they stress that action research that wishes to stay relevant needs to re-affirm its purposes and not solely seeking the "best practice". Nevertheless, the action research spiral is still used to describe the process by Kemmis et al. (2014b) and this study. Inspired by Gunnarson (2018), who highlights the contradiction between a post-qualitative approach and the use of a fixed model, the spiral is not used in this rethinking as a stable model, but seen as a performative agent in the project, a plan to keep playing with (Kane, 2015). The spiral also has similarities with how the systematic quality work is usually described, which creates opportunities for recognition for the teachers who show that their knowledge is important. What comes out of action can never be foreseen; therefore, a risk-reducing approach seeking for "good" actions is unsuitable. Gunnarsson (2017) explains:

> There are no ways of calculating the right actions but there is a possibility to be responsive to the moment, movement, and becomings. This involves holding the tensions, slowing down, and learning what the tensions teach. Focusing on the relational dimensions of how actions are performed may produce movements. (p. 677)

The constant movement in the research process is described by Gunnarsson (2018) as an "intertwined movement of trying-considering-tearing-failing-reconsidering" (p. 75, my translation). With this in mind, the analysis workshop was set up as a playing field with me and the three preschools from the small group.

Intra-active movement in action – revisiting the analysis workshop

The analysis idea with the two movements worked as an active agent during our work. Hand movements showing circles in the air or drawing an imaginary horizontal line were used to indicate where we were or were heading throughout the conversations. Staying in the circular movement was more comfortable and easier for all of us who participated in the workshop.

Lenz Taguchi (2012) describes the circular movement's comfort as one of the reasons for introducing horizontal movement. In her earlier work, when post-structuralist theories were used as starting points, the anthropocentric gaze was directed towards the teacher, questioning what and how things were said and done and what assumptions about children that these doings constructed. This created a self-reflection circle that kept on spinning, but that was difficult to escape from and use to come forward, pointing out the need for something that speeds up and smoothens

out, as the horizontal movement does. This movement can appear both when we are open to it, consciously seeking to smooth out striations, and suddenly, as Deleuze and Guattari call it, when a *line of flight* appears (Lenz Taguchi, 2012). The lines of flight are both positive forces and opportunities for violations of what is expected and habitual; if they are not acknowledged, they will quickly be toned down.

In the first part of the conversation about teaching in preschool, we mainly stayed in the circular movement, revisiting the different occasions. In that movement, statements about teaching as not belonging to preschool were seen as problematic, something that we needed to eliminate. Simultaneously, we kept reminding ourselves that this is not about judging right from wrong. Nevertheless, the non-acceptance of teaching as a part of preschool education created us as guards in the name of protecting the curriculum. In a later stage, we were looking for lines of flight and found that resistance to the use of teaching could be seen as what was challenging the prevailing discourse; and what is more, that the resistance had to be our starting point for further work. This shows how the different movements are connected: the slowing down made the resistance visible, and the speeding up showed that it was not possible to dismiss it as unwanted. The revisiting practice urged us to stay in the sayings, doings and relatings that had occurred in the different workshops, reinviting other participants, reaching beyond us, who at that moment were participating in the analysis workshop. In this way space, time and matter are producing each other iteratively (Barad, 2007).

Spaces and places can be more or less organised and planned; Lenz Taguchi (2012) uses striated and smooth spaces from Deleuze and Guattari to describe this, and here I use her interpretation. In striated spaces, there is a strong infrastructure built up with different materialities: furniture, where it is placed, lack of furniture, expectations, habits and norms all contribute as forces working on bodies in space and producing what is seen as normal and appropriate. In smooth or non-striated spaces, the infrastructure is weak, and there is freedom from habitual actions (Lenz Taguchi, 2012). Spaces are never either striated or smooth, but always a mixture of both, and in a fluid state no type of space is better than the other, they just do and produce different constraints, movements, and possibilities. In a preschool practice, striation serves an important purpose in showing structures that are foundations for how we talk and act in relation to each other. Moving from a strongly striated space to a smoother one, the openness does create possibilities. In contexts where there are clear and strong norms about how things should be, the offerings that come with the lines of flight can be perceived as disruptive.

When staying in the circular movement, we first identify the striations of the room to see how habits, traditions, organisation were materialised. In other words, how these things intra-actively took part in shaping what could be said and done in the room. This posing of questions was also picked up from how the preschool teachers are accustomed to work with analysis, acting as critical friends to each other (Rönnerman, 2011). After that, we elaborated on what we saw, making space for resistance and

counter-stories (Lenz Taguchi, 2012). This also makes the circular movement flattening in its will to place all readings, doings, sayings, actions and relatings on the same plane and not in a hierarchical structure. In the analysis workshop, lines of flight were produced, lines that were perceived as both disruptive and generative. The lines did enable us to stay in the complexity of preschool practices, the issue of teaching in preschool is multifaced and deeply connected to history, habits, traditions, and views of the (educational) future. Taking the rethinking of intra-active action research further, the next section engages in change.

Rethinking change

Change is central in education, and education is often connected to transformational processes for an individual or a group, loading the objects of change with new, more, and better abilities (Bodén et al., 2021). Therefore, change often has positive connotations and is seen as something desirable. Burner (2018) does not question that desire, but stresses that since change does not come easily in educational settings, it is important not to conceal the difficulties. Kemmis et al. (2014a) describe the double purpose of education as "preparing people to live well in a world worth living in" (p. 27). Showing the strongly normative commitment that is connected to the critical action research tradition, change will make the world better. Although action research has several purposes, change can be seen as central. It is emphasised that the collaboration between teachers, colleagues and researchers is supposed to change the doings, which is closely related to the sayings and relatings. This is done through dialogues and interactions that support self-reflection (Hardy et al., 2017). However, it is clear that change will first and foremost take place in non-research practice; Kemmis (2009) states that "[a]ction research aims at changing three things: practitioners' *practices*, their *understandings* of their practices, and the *conditions* in which they practice" (p. 463, italics in the original). The arrangements show how these three things hang together in sayings, doing and relatings when using TPA. In general, TPA was not designed to say something about what constrains educational situations, but instead, in particular cases, to offer understanding by holding on to and unwinding from the practice (Kemmis et al., 2014a).

Bodén et al. (2021) remind us that "change is not something out there to be found, *but an emergent phenomenon that unfolds as we explore it*" (p. 7, italics in original). In the intra-actions, all participating performative agents go through a process of becoming again and again. Talking with Deleuze (1994), this could be seen as becoming different – different in itself, but not different in relation to something external. Barad (2007) stresses that differentiating processes occur in relation to the commitments and connections that are intra-actively done. So, instead of focusing on differences in relation to something else, paying attention to the transformations in the intra-actions lends new perspectives. "Any event can introduce change and difference in our practices, but our willingness to let that happen depends on how we think about

learning and knowing and our relationship to that which we understand as reality" (Lenz Taguchi, 2010, p. 96). Therefore, it matters how the process of change are introduced and performed, since previous understandings, of teaching for example, are plugged into and intra-actively take part in a change process. An intra-active approach to action research implicates that opportunities for change are produced constantly, and addresses both research practices and other participating practices. Aronsson and Lenz Taguchi (2018) explain the ongoing entanglements: "The research and the researcher are relationally intertwined and mutually constituted by, and constitutive of, everything from data, analysis, to the site of research itself" (p. 246). Therefore, methods that are used need to be emerging and open for a multiplicity of becomings to stay relevant. Barad (2007) reminds us that we cannot passively look at the world from the outside; change requires that we put ourselves in relation to the world. The analysis workshop was a way of installing ourselves in the research and developmental practice, unwinding from within, with an desire to change.

Intra-active change in action – revisiting the analysis workshop

In the analysis workshop, the sketch on the whiteboard kept on evolving and changing, keeping us busy with taking pictures to be able to revisit our conversation. At the end of the workshop, we were all exhausted, we had planned for coming actions, and I also had a process to involve in this article. That movement relates to change becomes clear when revisiting the analysis workshop; the flow of the thinking–trying–failing–retrying movements (cf. Gunnarsson, 2018), both accelerating and retarding, opened up for new thoughts. The tension between stabilisation and change becomes obvious in relation to the introduction of teaching in preschool, since the change is by some practitioners perceived as a violation of the preschool traditions. When working with the resistance against teaching (in the analysis workshop) together with other responses produced, the dismissal created proposals for how to move on in the continued work with all the three preschools. Plugging in the resistance and questions posed in opposition to the concept of teaching can be seen as a troubling of the same concept, which also open for a continuation where it is possible for a multiplicity of educational becomings to exist at the same time. There is not one way of doing teaching in preschool, but many. When using resistance as a starting point instead of an obstacle, parallel stories and becomings for both humans and other agents can exist at the same time. The form of the analysis workshop invited new materialism perspectives to think with that also created movements and possibilities for change in relation to the content of the project, outdoor teaching. This was materialised in questions for discussion on outdoor teaching, inspired by entangled thinking.

There were, of course, plans and ambitions when the action research project was started. In the ongoing conversations, discussions, and reflections about and within the project, the plans evolved, maybe not as first expected, but in relation to what have been produced. In a broader perspective, what change will be produced in the

preschool practices participating in the project is still too early to say. Nevertheless, the rethinkings that I have done in this article shows that it is not only the preschool practices that are addressed in change, but also the research practice. Inviting ideas about the movement from pedagogical documentation contributed to the undermining of the researcher position, creating space for negotiating roles and positions. The importance of this is underlined by previous research from an action research perspective (cf. Bergmark, 2019), and a new materialism perspective can challenge this even further due to the view on who take intra-actively part in the project.

Exit: Openings and potentials

The rethinking of collaboration, movement and change in intra-active action research has opened up for several possibilities and potentials. Massumi (2002) makes it clear that there is an important difference between possibilities that consider what is known, and potentialities that "only feeds forward" (p. 9) in the direction towards what is not yet known. Both concepts offer variation, possibilities about different positions and potentials regarding the process of becoming. In this concluding part, I will propose some potentials for an intra-active action research approach.

As I have shown, the intra-active approach to action research produced proposals, for example how to move in response to the lines of flight, but it also produced underminings of assumptions on research practices and understandings of teaching in preschool. In action research, something even more emphasised by the suggested intra-active approach, there is no established way to conduct research and travel from point a to point b. Nevertheless, this does not mean that anything goes. Instead, it does require that issues concerning, for example, research quality and ethics are handled differently than in the traditional manner (Gunnarsson & Bodén, 2021; Zeni, 1998). The new materialistic approach implies that research cannot be performed at a distance since knowledge arises when we are part of the world (Barad, 2007), meaning that closeness holds potential and is inevitable; for this reason, active ethics (taking responsibility for the becomings) are required. According to this, the ethical considerations are not something that can be handled with informed consent documents, even though those kinds of procedures are also important. This correlates with Barad (2007) and the concept of "ethico-onto-epistem-ology" (p. 185). The concept shows that we are always intertwined with the world and all its becomings. It is not possible to separate the knower from the knowledge. Therefore, "we must meet the universe halfway, to take responsibility for the role that we play in the world's differential becoming" (Barad, 2007, p. 396). This implies that a researcher's ethical responsibility is extensive and demands a high level of sensitivity throughout the whole process.

The chosen togetherness in the intra-active research project holds potential for both the research practice and the preschool practice to differentiate and change (Gunnarsson, 2017, 2018; Rönnerman, 2011). When practices collaborate, it is difficult to define definitively where one practice ends and the other begins, since they do not

come in isolation (Gunnarsson, 2018; Kemmis et al., 2014a). If the encounters between practices and their constant movement are acknowledged, the boundary-making processes become less important. In some ways, it is totally clear that the research practice and the preschool practice are to separate practices, controlled by and part of different systems, when, for example, it comes to time, the structure of daily work, tasks, laws, curricula and goals. Nevertheless, when opening up for intra-action, a joint something is produced.

One potential that arises in this collaboration is that both research and school practices are given the opportunity to trouble question predetermined boundaries. "Not with a purpose of creating completely equal or flattened relationships, but to meet and work together with different knowledge and responsibilities" (Gunnarsson, 2018, p. 79, my translation). Asymmetries can also be part of a collaboration (Gunnarsson, 2017). Thus, it is a matter of acknowledging and trying to understand the conditions of the various practices and come to meetings that become something other and more than collisions and confirmations. This presupposes a constant reconsideration of what it means to be a researcher and be in research, to be and stay with and in change.

This article is a contribution to how practice-based research, both from a theoretical and methodological perspective, can be performed intra-actively, making rigid constructions such as bridges impossible to build. Knowledge, understood as material-discursive, is always situated, in time and place, affected by the surrounding arrangements. Implications from the rethinking of collaboration, movement and change are that staying in the complexity of practices, rather than searching to reduce the messiness, hold potentialities for change that unwind from the middle.

Author biography

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