Material–relational abstraction

Museum educational situations with abstract art

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Summary

The purpose of this Ph.D. thesis is to study how museum educational situations with abstract art can be created and understood in light of new materialist theory-practice. My approach is inspired by Gilles Deleuze' (2021/1968, 2018/1988) and Deleuze and Félix Guattari's (2020/1980, 2009/1994) philosophy and new materialist theory-practice (Bolt, 2004; Kontturi, 2018; O'Sullivan, 2001, 2006; Page, 2018, 2020). The new materialist approach challenges representational logic, human-centeredness and the hegemony of language, setting the focus on the agency and entanglements of nonhuman matter. The thesis consists of four articles and a meta-analysis.

A central part of the project is the *Abstraction!* exhibition (4.9.2020–24.1.2021) I curated for the Children's Art Museum, a section dedicated for children inside Sørlandets Art Museum in Kristiansand, Norway. The exhibition displayed Nordic postwar abstract art from the Tangen Collection, together with experimental activities and digital solutions. To find alternative ways to approach abstract art in the museum space and reflect the educational potential of abstract art, I started to experiment with the concept of abstraction. These experiments became my post-qualitative inquiry (St. Pierre, 2019a), and the reflections were further used in the curatorial decisions at the Children's Art Museum. The setting emphasised the more-than-representational qualities of abstract art with open-ended and nonlinear activities and embodied learning strategies. When the exhibition opened, I invited two groups of 5–7-year-old children to the exhibition; the visits were recorded with stationery and action cameras. In addition to this material, I observed eight groups of 10–12-year-old children with their teachers on a guided tour at the *Gunnar S. Gundersen – Groundbreaking Modernist* exhibition and visiting parts of the Children's Art Museum at Sørlandets Art Museum. I also explored the concept of abstraction with the Finnish-Norwegian artist Irma Salo Jæger, who has worked over 60 years with abstract art.

The many encounters with abstraction are studied as *material–relational situations*, a concept I form from the writings of the art historian, curator and theorist Dorothea von Hantelmann (2014) and artist-teacher-researcher Tara Page (2018, 2020). Every artwork has a reality-producing dimension — performativity— which emerges situationally in relation to the spectator (von Hantelmann, 2014). The entanglements in these situations are pedagogical, and learning can happen when we engage with our bodies in a sociomaterial world

(Page, 2018). I argue that abstract art (and other art with abstraction) has a particular capacity to provoke material–relational situations, given that it touches senses and challenges representational logic. This quality is further studied in the project through the philosophical concept of abstraction, and it is used as an educational approach at the *Abstraction!* exhibition.

It is argued that the uncertainty in abstract art has educational potential. When the 10–12-year-olds encounter an abstract painting on a guided tour, each student sees the painting differently, pointing out different figures and associations in the ambivalent, nonfigurative, abstract image. Abstract art is a safe opportunity to explore feelings of uncertainty and discomfort, which can build tolerance to uncertainty in everyday life. Abstraction can be an excellent site of learning for its potential to break old patterns and think anew and to reject tunnel vision and binary thinking. When the 5–7-year-olds engaged with the *Abstraction!* exhibition, the teaching matter in the space guided the children's artmaking, and the human and nonhuman matter transformed into artistic matter. Understandings can be made not only by verbal, logical and rational ways, but by engaging with bodies and senses with the teaching matter. Children might be more open towards abstract art and the entanglements of agential matter than adults, who might be more accustomed to representational logic.

The project contributes most importantly to post-approaches and, more specifically, new materialist perspectives in museum education. Studying and creating the concepts of *material–relational situations* and *abstraction* contribute to both the theoretical and practical fields of museum education, opening perspectives for learning. Finally, the project contributes to a posthuman conceptualisation of children in museums.

Contents

1. Introduction: Art comes into being material–relationally

Figure 1. *The Wellspring appears* (1961) from Irma Salo Jæger during the building of the *Abstraction!* exhibition at Sørlandets Art Museum in 2020. Oil painting on canvas. 116 x 81 cm. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

An uneven blue square appears on an orange-brown background that consists of multiple smaller colour fields. The brown colours surrounding the centre refract to orange, black, yellow, and burning red. The blues have murkier and brighter tones, with a smoky, shrouding greenish grey hovering here and there. Although the overall impression is calm and harmonious, a closer look reveals countless small details, brushstrokes and colours running away from the forms, breaking the rectangular patterns. The rough surface of the painting is filled with palette knife marks and small chunks of paint. Do the colours and forms, created by oil paint on a canvas, represent something? Is the painting a window to the sky or water on the ground? Or is it perhaps a landscape, a horizon where the sun and earth meet? Is it a mindset or a memory of the artist? Or is it

chills on the arm, details catching a gaze, and layers of paint cracking silently on a canvas?

The Finnish-Norwegian artist Irma Salo Jæger's oil painting *The Wellspring appears* (1961) has been with me throughout this doctoral project (see also Appendix 2, Figure 18). I found it online before my fellowship had begun and was planning to use it in my original project plan, a doctoral project where I would study museum educational situations with abstract art. I have since experienced the painting in four different exhibitions in Norway and Finland.[1] I have wondered about the painting on a dark December afternoon just before closing time at Sørlandets Art Museum and greeted it again on a hot, sunny summer day at Hämeenlinna Art Museum in Finland. I have looked at the painting with music and presentations in concerts and seminars taking place in the exhibitions. I have seen children playing with it and adults taking photos of it. It has made me think, it has made me move closer, and it has surprised and confused me. Each time I encounter the work of art again, I feel like meeting an old friend, yet the painting is new and different. It changes with different lightings and rooms, wall texts and colours.

The story demonstrates important themes in my doctoral project. First, art is regarded not only as an isolated object on a wall but as an experience and a situation that engages not only verbal and rational ways of understanding art, but also senses, action and participation. Art comes into being *material–relationally* when the painting, visitors and museum setting emerge into a situation. During the past two decades, a change has taken place in Nordic museums and abroad. The focus has shifted from museums as authoritative educational institutions mediating knowledge towards situations where the visitors are cocreating experiences. What is referred to as the 'experiential turn' (von Hantelmann, 2014) in museum education has emerged not only with contemporary art's new immersive and spatial artforms, but also from constructivist perspectives in museums (Hein, 2006), relational aesthetics (Bourriaud, 1998), relational and performative perspectives in art education (Aure, 2011, 2013; Aure et al., 2009; Illeris, 2002, 2004, 2006, 2010, 2015, 2016; Skregelid, 2019), participatory methods (Simon, 2010) and phenomenological (Merleau-Ponty, 2012) and pragmatic (Dewey, 1980/1934) educational philosophies.

[1] *11 Nordics. Artists from the Tangen Collection* (Sørlandets Art Museum, June 22 – November 17, 2019), *Before the Horizon. AKO Curatorial Award* (Sørlandets Art Museum, December 7, 2019 – March 1, 2020), *Abstraction!* (Sørlandets Art Museum, September 4, 2020 – January 24, 2021), *The New Beauty – Modernist Highlights from the Nicolai Tangen Collection* (Hämeenlinna Art Museum, Finland, May 13 – October 17, 2021).

Second, material artwork is not a static or passive object, but it has agency in the situations. The painting catches the spectator's attention in surprising ways. It might send chills across the arm, provoke associations and imaginations or overwhelm the senses with details. The emphasis is not only on how humans create and understand art, but it is on how the material artwork *creates us*. How does the painting affect the visitor? In recent years, post-approaches, such as posthumanism, new materialisms and decolonial theories have been introduced to the field of museum education (Booth, 2017; Feinberg & Lemaire, 2021; Grothen, 2021; Hacklin, 2022; Hackett et al., 2018; Hood & Kraehe, 2017; Medby & Dittmer, 2020; Mulcahy, 2021; Rieger et al., 2019; Sayers, 2015). These approaches emphasise the performative entanglements of human and nonhuman matter. The focus shifts from verbal and cognitive learning perspectives towards embodied, material and emplaced knowing (Hackett et al., 2018).

Finally, the numerous interpretations about the painting throughout the course of the project, as heard from adults and children, visitors and colleagues, demonstrate the open-endedness of abstract art. Like the Swedish curator Maria Lind (2013) has noted, abstract art is filled with contradictions, paradoxes and rifts. Abstraction, which seems to reject representation, often transforms into a multiplicity of representations. The ambivalence and uncertainty might create confusion and even frustration, given that one can rarely end up in fixed answers, and the image cannot be controlled by its creator or spectator. A central argument in the present dissertation is that uncertainty should not be ignored but emphasised for its educational potential. The ambivalence and transformative nature of abstract art can create a space to exchange opinions and perspectives, to get creative and to understand things in a new light and in new ways.

Aims

My initial motivation for the project came from my own experiences mediating abstract art as a museum guide in my country of origin: Finland.[2] During my guided tours, I received frustrated comments from visitors that abstract art was difficult to understand, and it was sometimes challenging for myself to talk about abstract art. Throughout its history, abstraction has created conflicts and debates among art professionals and the wider public (Arvidsson, 2018; Linsley, 2017, Varnedoe, 2006). An aim in the present project has been to study the educational potential of art, which does not have fixed

[2] I worked as a museum assistant and freelance guide at Aboa Vetus & Ars Nova Museum in Turku, Finland, in 2014–2016. In addition, I have worked as a museum guide at Seurasaari Open-Air Museum (part of the National Museum in Finland) in Helsinki during three summer seasons from 2012 to 2016 and as an intern at the collection unit at WAM Turku City Art Museum in 2015.

answers, hence challenging representational logic. Although this quality and its educational potential can be found from many kinds of art, my focus here is on abstract modernist paintings and prints, given that they provide a 'straightforward' encounter with abstraction.

In 2019, Sørlandets Art Museum in Kristiansand, Norway, invited me to curate an exhibition (*Abstraction!* 4.9.2020–24.1.2021) about abstract art that would be in the Children's Art Museum, a section dedicated for children.[3] The curating process and exhibition became an important part of my research. The exhibition displayed abstract modernist art from four artists from the Tangen Collection[4]: Irma Salo Jæger (b. 1928), Outi Ikkala (1935–2011), Vladimir Kopteff (1932–2007) and Gunnar S. Gundersen (1921–1983), including the painting presented above.[5] The curatorial plan was to create a museum educational setting where the whole family could explore abstract art with their senses, action and philosophical wondering. When the exhibition opened, I invited two groups of 5–7-year-olds to the exhibition, and the visits were recorded with stationary and action cameras. In addition, I have observed eight groups of 10–12-year-olds with their teachers participating in a guided tour at the *Gunnar S. Gundersen – Groundbreaking modernist* exhibition at Sørlandets Art Museum and visiting parts of the *Abstraction!* exhibition. I have explored the concept of abstraction together with the artist Irma Salo Jæger, who has worked over 60 years with abstract art. The four parts of the project are presented later in the chapter.

The many encounters with abstract art in this project are approached as *material–relational situations,* a concept I form based on the new materialist writings of the artist, teacher and researcher Tara Page (2018, 2020) and art historian and curator Dorothea von Hantelmann (2014). Every artwork has a reality-producing dimension—performativity—which emerges situationally in a '[...] given spatial and discursive context – and relationally, that is, in relation to a viewer or a public' (von Hantelmann, 2014, para. 1). The entanglements of bodies and matter in these situations are pedagogical, and learning can happen when we engage with matter with our bodies in a

[3] A presentation of the exhibition can be seen in Appendix 1.

[4] The Tangen Collection consists of over 4,000 works with an emphasis on Nordic modernist art. Norwegian hedge fund manager, CEO of Norges Investment Bank Management and art collector Nicolai Tangen donated the collection to AKO Art Foundation in 2015. Sørlandets Art Museum has the perpetual right of disposal of the art, and the collection will receive a permanent home in the new building. More information about Kunstsilo and the Tangen Collection, see Kunstsilo, n.d.

[5] Presentation of the artists and the artworks at the *Abstraction!* exhibition, see Appendix 2.

sociomaterial world (Page, 2018). I present the concept of *material–relational situation* in detail in the second chapter.

Children are important participants in the current research project and not only as visitors in museums to whom many educational and pedagogical activities in museums are designed for. As many museum educators have noticed, children might be more open towards abstract art than adults, who might be intimidated by the task of 'understanding' abstract art (Aune, 2005). An important aim in the present thesis is to study how adults might learn from children in museum educational situations with abstract art.

Research questions

My approach to arts and learning as a museum educator and researcher has transformed over the course of the project, which is further examined in the current dissertation's articles and meta-analysis. As a museum educator and researcher, I have opened my perspectives from the critical tradition towards the experiential museum educational paradigm and post-approaches in museum education, moving towards perspectives that take the more-than-representational and material–relational qualities into consideration when studying and creating museum educational situations with abstract art. The project is underpinned by Gilles Deleuze's (2021/1968, 2018/1988) and Deleuze and Félix Guattari's (2020/1980, 2009/1994) philosophy and new materialist theory-practice (Bolt, 2004; Kontturi, 2018; O'Sullivan, 2001, 2006; Page, 2018, 2020). New materialist approach challenges human-centredness, representational logic and the hegemony of language, setting a focus on the agency and entanglements of nonhuman matter.

The transformative movements in the project, which should not be seen as jumping from one tradition to another but rather as opening of perspectives, have been inspired by abstract art itself. Given that abstract paintings do not follow representational logic, it did not seem appropriate or meaningful to approach situations with abstract art using conventional methods and philosophies. As a result, the overall question in my research project is as follows: *How can museum educational situations with abstract art be created and understood in light of new materialist theory-practice?*

In the first article, 'Abstraction in Action: Post-Qualitative Inquiry as an Approach to Curating', I describe the process of curating the *Abstraction!* exhibition at the Children's Art Museum. I critically study my own former practices as a museum guide mediating abstract art, and I start to experiment with abstract art to find new ways to approach the art form outside of dialogue-based methods, imagining how a child might want to experience abstract art. I experiment with the concept of abstraction both in and outside of museums. These experiments become my post-qualitative inquiry,

according to Elizabeth St. Pierre (2011, 2019a, 2019b), where concepts are 'reorienting thought' (p. 9) and a 'creative force' (p. 7) During the inquiry, I move from Jacques Derrida's deconstruction (1981, 1993) towards Deleuze and Guattari's (2020/1980) flat one-world ontology in my ontological understandings. Moving beyond verbal understandings, I approach abstract art with senses, action and participation, and the approach is used in the *Abstraction!* exhibition. The research questions in the first article centre on the following: *What is the educational potential of abstract art? How can we use the concept of abstraction as a creative force and educational approach?*

In the second article, 'The Virtual of Abstract Art. Museum Educational Encounters with Concrete Abstraction', I study how the educational potential of abstract art, as suggested in the first article, unfolds when 10–12-year-old children encounter abstract art at the *Gunnar S. Gundersen – Groundbreaking Modernist* exhibition at Sørlandets Art Museum. I conceptualise the unfolding of the educational potential with the concepts of *virtual* and *actual* (Deleuze, 1988/2018, pp. 42–43; Deleuze & Parnet, 2002/1977, p. 148). The *virtual*—the potential of how the artwork might be experienced—*actualises*; that is, it becomes concrete in lived experiences. The groups participate first on a guided tour with dialogue-based museum educational practices and then visit a digital installation that took place at the exhibition I curated for the Children's Art Museum.

After the *Abstraction!* exhibition opened, I invited two groups of 5–7-year-old children from a Norwegian primary school to visit the exhibition. The two visits were recorded with stationary and action cameras. This material is discussed in the third article 'Can I Go into the Artwork? Material–Relational Situations with Abstract Art'. My central questions in the article are as follows: *How does material and embodied pedagogy underpinned by new materialisms open perspectives for learning when children encounter abstract art at the* Abstraction! *exhibition? How do children and adults relate to the experiential museum setting and the agential 'teaching matter'?*

In the fourth article 'Abstraction through the Kaleidoscope: Playful Concept Creation with Irma Salo Jæger', I come back to the concept of abstraction. Throughout the day spent with the artist at her studio, we explore the philosophical concept of abstraction. The materials around us at her studio, such as paintings, books and artistic materials, guide and interrupt our investigation. The concept creation is inspired by new materialisms (Bolt 2004; Kontturi 2018; O'Sullivan 2001, 2006; Page 2018, 2020) and Deleuze and Guattari's philosophy of concepts (2009/1994). As Deleuze and Guattari (2009/1994) have said, concepts are not 'ready-made' (p. 5) or only to be applied to empirical material, but they need to be actively created. During the day, the concept of

abstraction becomes concrete in stories, references, paintings and situations. *How does an artist who has worked with abstract art over six decades understand the philosophical concept of abstraction? What is the relationship of abstract and concrete?*

Structure

The present thesis is organised in two parts: the meta-analysis and four articles. The purpose of the meta-analysis is to provide unity and context for the thesis. First, I present the theoretical and methodological underpinnings in the project. Next, I provide an overview of the scholarly field of museum education and an introduction of how the concept of abstraction is developed and used as an educational approach. I conclude the meta-analysis with a summary of the articles and contributions.

The material studied in the articles has taken its form in many ways. I have here organised it into four brief sections to make it easier for the reader to comprehend the multiplicity of material–relational situations studied in the project and referred to in the meta-analysis' chapters (Figure 2). The four parts are as follows: 1) *Abstraction!* exhibition at the Children's Art Museum, 2) observations at the *Gunnar S. Gundersen – Groundbreaking modernist* and *Abstraction!* exhibitions, 3) visual ethnography at the Children's Art Museum and 4) creating the concept of abstraction with the artist Irma Salo Jæger (see also the Appendices).

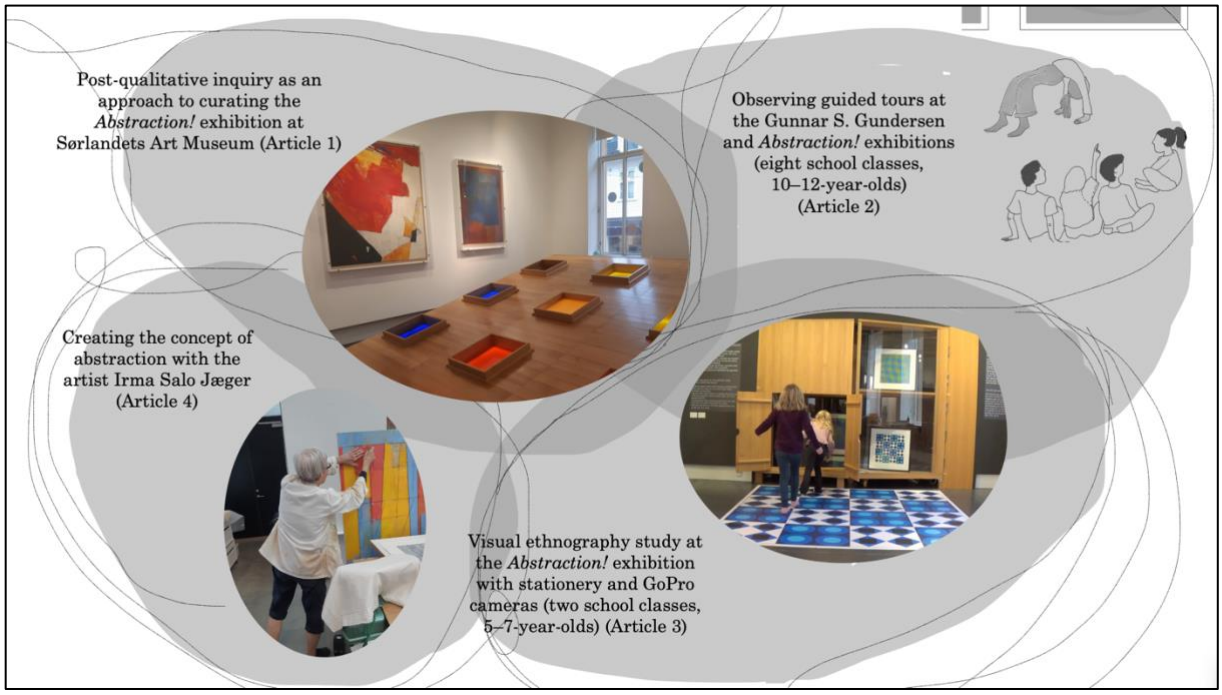

Figure 2. The four parts of the project. Diagram and photos: Heidi Kukkonen © Heidi Kukkonen, 2023

Abstraction! exhibition at the Children's Art Museum

In 2019, Sørlandets Art Museum invited me to curate an exhibition about abstract art at the Children's Art Museum. The exhibition would create an important empirical part of the doctoral project and support the museum's competence and understanding of museum education with abstract art. The exhibition was funded by AKO Foundation.[6]

The *Abstraction!* exhibition took place in three rooms and a climbing cabinet.[7] The curatorial plan was to create a museum educational setting where the visitors can explore abstract art with senses, action, experimentation and philosophical wondering. Digital solutions, including a user-generated digital installation, were used in the space. The wall texts in each room provided an art historical context together with philosophical and wondering questions. Fifteen paintings and prints from four Finnish and Norwegian artists from the Tangen Collection—Irma Salo Jæger, Outi Ikkala, Vladimir Kopteff and Gunnar S. Gundersen—were exhibited at the Children's Art Museum.[8]

Observations at the Gunnar S. Gundersen – Groundbreaking modernist *and the* Abstraction! *exhibitions*

During fall 2020, I observed eight groups of 10–12-year-old children and their teachers from Norwegian primary schools visiting Sørlandets Art Museum (altogether 145 students and teachers and a guide).[9] In addition to new materialisms (Bolt, 2004; Kontturi, 2018), this part of my study was inspired by participatory observation methods (Warming, 2007). The groups participated first on a guided tour at the *Gunnar S. Gundersen – Groundbreaking Modernist* exhibition and then visited parts of the *Abstraction!* exhibition. When the groups arrived at the museum, the children and teachers were informed who I was by me and the guide and asked if they wanted to

[6]Collaboration with the local art museum, Sørlandets Art Museum in Kristiansand, was written into the Ph.D. research fellowship I applied for at the University of Agder in 2019. However, details on how the collaboration would take place were not planned before I started my research fellowship in 2019. The main theme of my project, to study museum educational situations with abstract art, was my own initiative. During the first semester, I had meetings with the museum where we looked at options on how our collaboration could be realised. In December 2019, the museum invited me to curate an exhibition at the Children's Art Museum, a section dedicated to children inside the museum. In 2022, the museum building (where the *Abstraction!* exhibition also took place) at Skippergata closed, and the museum changed its name to Kunstsilo. The institution is in a process of moving into a new building, an old grain silo in Kristiansand.

[7] For a detailed presentation of the exhibition, see Appendix 1.

[8] For a presentation of the artists and artworks at the *Abstraction!* exhibition, see Appendix 2.

[9] For more detailed information, photos of the exhibition and structure of the visits, see Appendix 3.

participate in my research project. I wrote and drew notes of the situations by hand on paper. This material is discussed in the second article.

Visual ethnography study at the Children's Art Museum

When the exhibition at the Children's Art Museum was taking its form, I invited school groups to visit the exhibition to study how the experimental design functions in practice. Two groups consisting of ten and six children, one teacher and two teacher assistants from a Norwegian primary school, along with a person working at the museum, participated in this part of the project. The visits were recorded with three action and three stationary cameras.[10] My methodological approach was inspired by visual ethnography according to social scientist, ethnographer and social anthropologist Sarah Pink (2021). This material is discussed in the third article.

Collaboration with Irma Salo Jæger

The Finnish-Norwegian artist Irma Salo Jæger is one of the pioneers of abstract modernist art in Norway. The artist was born in 1928 in Soini, Finland, and she has lived and worked in Norway since the 1950s. I contacted Irma Salo Jæger in the late spring of 2020, after I had decided to include two of her paintings from the Tangen Collection in the *Abstraction!* exhibition. I wanted to conduct an interview with her to find out more about the two paintings at the Children's Museum, along with how she, with 60 years' career with abstract art, understands the philosophical concept of abstraction. I met with the artist at her studio in Sagene, Oslo, and we have continued our discussions by emails and phone calls. I have taken photos and sound recordings of our discussions. This material is discussed in the fourth article.

Four articles in the dissertation

1. Abstraction in Action: Post-qualitative Inquiry as an Approach to Curating
2. The Virtual of Abstract Art. Museum Educational Encounters with Concrete Abstraction
3. 'Can I Go into the Artwork?' Material–Relational Situations with Abstract Art
4. Abstraction through the Kaleidoscope: Playful Concept Creation with Irma Salo Jæger

[10] For more detailed information about collaboration with the school, structure of the visits and positioning of the cameras, see Appendix 3.

2. Theoretical and methodological underpinnings: From ontological hauntings of representation towards material–relational situations

In this chapter, I present the theoretical and methodological decisions that have influenced the project. My research is situated in the field of museum education, and inspired by new materialisms (Bolt, 2004; Kontturi, 2018; O'Sullivan, 2001, 2006; Page, 2018, 2020), post-qualitative inquiry (St. Pierre, 2011, 2019a, 2019b), and underpinned by Deleuze (2021/1968, 2018/1988) and Deleuze and Guattari's (2020/1980, 2009/1994) philosophy. Closely related to the post-approaches in the field of museum education is the performative research paradigm (von Hantelmann, 2014), which has also inspired this project. In the parts of the project where I collaborated with school groups, I combined the new materialist and post-qualitative approaches with visual ethnography (Pink, 2021) and participatory observation methods (Warming, 2007).

The core narrative of this chapter is how my approach to arts and learning as a museum educator and researcher has transformed during the PhD project; how my perspective has opened towards post-approaches in museum education. These transformative movements in the project can also be seen in the four articles. I begin by depicting the 'ontological hauntings' (St. Pierre, 2019a, p. 12), that is, the conflict between me and abstract art when I worked as a museum guide, which initiated the PhD project. I argue that the conflict originates from representational logic and privileging language over materiality in my ontological understandings as a museum guide and researcher. This is followed by describing the new materialist and post-qualitative methodologies that inform the project, which are underpinned by Deleuze and Guattari's philosophy and, most importantly, the *flat one-world ontology* in their writings, as described in *A Thousand Plateaus – Capitalism and Schizophrenia* (2020/1980). Next, I investigate how learning happens in the ontology by presenting the concept of *material–relational situations*. The concept is central in my dissertation, explicitly in article 3. I form and develop the concept from the writings of von Hantelmann (2014) and Page (2018, 2020).

The transformation that takes place in the project does not mean a linear movement from one tradition to another (e.g., from representational logic to nonrepresentational) but rather an *opening* where the hierarchy of the traditions is flattened (from representational logic to more-than-representational).

The ‘ontological hauntings’ of representation

In recent years, a number of studies using post-approaches, such as posthumanisms and new materialisms (Booth, 2017; Feinberg & Lemaire, 2021; Grothen, 2021; Hacklin, 2022; Hackett et al., 2018; Hood & Kraehe, 2017; Medby & Dittmer, 2020; Sayers, 2015) and decolonial theories (Mulcahy, 2021; Rieger et al., 2019) have been made in the field of museum education and closely related fields. Post-approaches in museum education are a rather new and growing field. Jusslin et al (2021) define the post-approaches in art education as follows:

> By post-approaches, we mean theoretical and philosophical approaches responding to an ontological turn that moves beyond representational assumptions that language alone can describe and represent reality. Post-approaches slightly shift the focus from representational positionings to also highlight performative positionings where human and non-human entanglements are always in becoming. As such, post-approaches include, for example, posthumanisms, new materialisms, agential realism, poststructuralism, relational materialism, socio-material perspectives, decolonial theories, and indigenous philosophies. (p. 1)

In chapter three, I present post-approaches as part of a larger paradigm shift, the ‘experiential turn’ (von Hantelmann, 2014) in the museum educational field. To explain how and why I have chosen to use the post-approaches of new materialisms and post-qualitative inquiry in the project, I briefly go back to where this project started. My own challenging experiences as a museum guide, which took place some years before I started my PhD project, functioned as a conflict that provoked my interest in studying museum educational situations with abstract art. This can be seen in what the American methodologist Elizabeth A. St. Pierre (2019a) calls as the ‘strange ontological hauntings of one’s life’: ‘Perhaps an old encounter that won’t let go or a new one that’s become intelligible – moment of shock and disorientation almost unrecognised which escapes good sense and common sense’ (p. 12). Similarly, the new materialist theorist and artist Simon O’Sullivan (2006) writes about ‘event-encounters’ (p. 2) that end up being selected to study further because they force to reflect, creating inspiration or enthusiasm, questioning and challenging what one already knows. I describe the ‘hauntings’ in the first article, as follows:

> When I worked as a museum guide in my native country, Finland, I used traditional dialogue-based methods with abstract art. I tried to decode the meaning of the artworks, and I focused on factual art historical information on my guided tours. Despite my lengthy explanations, I received frustrated comments from the visitors that the art form was difficult to understand. It was challenging for me as well to talk about abstract art. [...] I came to realize that text-oriented research methodology would only get me so far when exploring abstraction. It was pointless to try to read abstract art like a textbook, when it has unique qualities that cannot be always explained by words. I had to turn towards bodies, senses and action, things I had neglected when working with traditional dialogue-based methods. (Kukkonen, 2022a, pp. 320–324)

What was haunting me in my practices as a museum educator was the cracking and breaking representation of abstract art and the representational logic itself that I was trying to put it in. Representation, according to Deleuze (2021/1968, pp. 38–39), is formed by identification, opposition, analogy and resemblance. On a traditional guided tour that I was working with, for example, the guide identifies and creates analogies, finds oppositions and resemblances among the artworks in an exhibition, here often according to art historical and biographical information, hence paying less attention to senses and subjective experiences. Representational logic can also be seen in the practice of curating. An example of this is an exhibition where artworks are organised strictly according to grand narratives or other categories and the exhibition texts focus on the factual information that the visitor 'receives'. O'Sullivan (2006) exemplifies the logic of representation by the difference of *recognising* and *encountering* an art object. When one *recognises* an artwork, one reconfirms what is already known, 'a representation of something always already in place' (O'Sullivan, 2006, p. 1). *Encountering* disrupts the representational logic, hence generating new understandings.

According to artist and theorist Barbara Bolt (2004), 'representationalism' still dominates our contemporary way of thinking (pp. 12–13). 'Representationalism orders the world and predetermines what can be thought' (p. 9). Art historian Katve-Kaisa Kontturi (2018) writes that representational thinking risks disregarding the unpredictable and creative materiality of art, particularly given that 'the movement of art threatens to be reduced to meanings alone – and often to meanings that are already constituted, already known' (p. 28). If the museum educational situation is based only on representational logic, it risks silencing the 'event' that is art. In addition to and

beyond the representational level, one should ask how the art affects our bodies and senses, hence letting the agential artworks work in relation to the museum visitor.

It is important to point out that representational logic should not be abandoned or disregarded; instead, it continues to be important part of museum educational practices—'after all we are representational beings' (O'Sullivan, 2006, p. 28). Representational thinking becomes a problem if one gets stuck in it, and it becomes the only way of approaching artworks in a museum space, a strict frame around the experience. Instead, representation is one possible level of an experience, like a threshold between recognising and encountering art, where one can move further and beyond. This movement might eventually not only go beyond, but also break the representation. Here, the *recognising* becomes *encountering:* knowledge is disrupted, challenging the world as we know it. 'The encounter then operates as a rupture in our habitual ways of being and thus is our habitual subjectivities. It produces a cut, a crack' (O'Sullivan, 2006, p. 1). 'Art is this complex event that brings about the possibility of something new' (p. 2).

The idea of representation as a threshold can be exemplified with the material discussed more in detail in the second article. When I observed the 10–12-year-old children participating in a guided tour through the *Gunnar S. Gunderen – Groundbreaking Modernist* exhibition, the children challenged and moved beyond representational logic. The situation focused on transferring art historical and biographical information about the artworks from the guide to the groups. However, the children 'broke' the expected patterns by standing up from the floor and moving their bodies, often unexpectedly during the conversations, which seemed to surprise and sometimes worry the adults in the room.

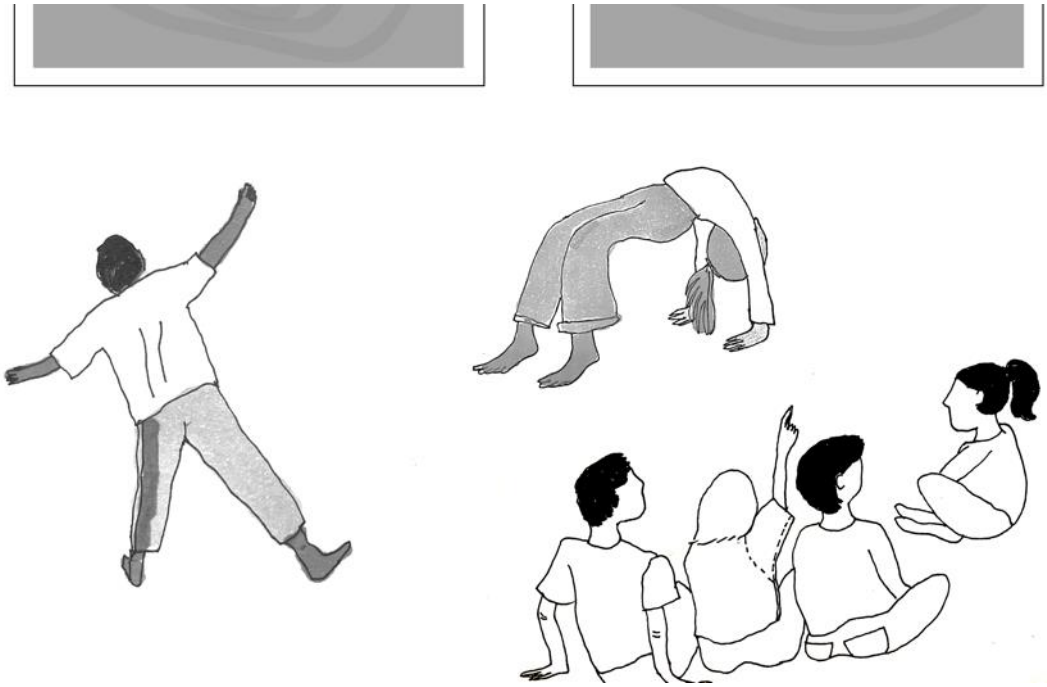

Figure 3. Illustration created by me (from article 2). Heidi Kukkonen © Heidi Kukkonen, 2020

Similarly, when the guide made more definitive statements about the artworks (perhaps to stimulate conversation among the group), for example, that the artworks are called ‘concrete’ and that they do not represent anything, the children were fast to point out representational things in the artworks (*it looks like a tree!*) and challenge the art historical definitions and narratives. In these moments, the representation functions as a threshold that provokes the children to challenge it, especially if the museum educational situation allows it to happen (e.g., the children are allowed to get up from the floor, move with the paintings and disagree with the educator).

Working with the ‘ontological haunting’ of representation then pushed me towards research methodologies and museum educational practices that take the more-than-representational of art into consideration. Instead of forcing abstraction into representational thinking, verbal explanations and understandings based strictly on reason, factual, biographical and art historical information—what O’Sullivan (2006) might call the ‘frozen event’ (p. 36)—I became curious to the more-than-representational actions happening in museum educational situations with abstract art.

In the first article, I study these through my own body, wonderings and actions with abstract art in a self-study. In the other three articles, the material–relational situations do not concern only me but the participants in my study, children and teachers,

museum staff and the artist Irma Salo Jæger. Before going further into post-qualitative inquiry and new materialisms, I study the ontological conundrum and present the ontological understanding, most importantly informed by Deleuze and Guattari (2020/1980) that underpins the project (and the methodologies that I have chosen to use).

Flat one-world ontology operating beyond representation

My research is inspired by Deleuze's (2021/1968, 2018/1988) and Deleuze and Guattari's (2020/1980, 2009/1994) philosophy. Their writings have had a great influence not only on qualitative research (Mazzei & Mccoy, 2010) but on the post-approaches, such as new materialisms (e.g., O'Sullivan, 2006; Springgay & Rotas, 2015; Kontturi, 2018), post-qualitative inquiry (e.g., St. Pierre, 2019a), nonrepresentational theories and methodologies (Vannini, 2015) and posthumanism (e.g., Rautio, 2013). Although mostly referring to new materialisms, the researchers in education, Stephanie Springgay and Nikki Rotas (2015), write about 'Deleuzian-informed methodologies' that 'posit affective, machinic, molecular, schizo, nomadic, enfleshed, and vital approaches to research that cut across previously segregated and dualistic methods' (p. 552). O'Sullivan (2006) describes Deleuze and Guattari's writing as '[...] an experiment in thinking differently, 'beyond' representation. Their collaborative projects, and their single authored works, offer us a 'new image of thought', one in which process and becoming, invention and creativity, are privileged over stasis, identity and recognition' (p. 2).

Deleuze and Guattari's philosophy is inspired by process philosophers such as Henry Bergson, Baruch Spinoza and Friedrich Nietzsche. Deleuze and Guattari's understanding of ontology is often described as 'flat one-world ontology' (e.g., Østern et al., 2021, p. 8). Deleuze and Guattari understand the world as constantly changing and moving, perhaps sometimes slowing down but never static. Instead of *being*, the world happens in a constant *becoming*. The concept of *rhizome* describes the world in its dynamic movement: 'a rhizome is not amenable to any structural or generative model. It is a stranger to any idea of genetic axis or deep structure' (Deleuze & Guattari, 2020/1980, p. 11). A rhizome is like a constantly expanding root of a plant, an organism with an uncountable number of connections and parts. Because the ontological state of the world is in constant movement, one is always in the middle, in a process: 'A rhizome has no beginning or end; it is always in the middle, between things, interbeing, intermezzo' (p. 26). The world is *immanent*, meaning that there is no ideal, outside

dimension of truth and pure forms that pre-exists and transcends the human-lived reality. Everything in the world, both abstract and concrete elements, material and immaterial, are related to each other, existing only in relation to each other without hierarchy (hence *flat one-world* ontology). As O'Sullivan (2006) describes it, 'Here process (movement) replaces stasis (fixity) as the world's and the subject's *modus operandi*' (p. 31).

The hegemony of language

When I worked as a museum guide, I worked mostly with dialogue-based methods in a museum space, where meaning is created most importantly with language by discussing and interpreting artworks with museum visitors. Dialogue-based methods in a museum space can be understood as a range of practices that use participatory and multisensory ways of approaching art (Dysthe et al., 2012), but my practice was more traditional, focusing on discussion and taking distance from subjective sensing. In my earlier studies, I worked with an anthropocentric ontological assumption that reality is built on words (Kukkonen, 2017). The researchers in education, Karin Hultman and Hillevi Lenz Taguchi (2010) write that the understanding that reality is constructed by words '[...] reduces our world to a social world, consisting only of humans and neglecting all other nonhuman forces that are at play' (p. 526). In the beginning of my PhD project, I realised—as I describe in the first article—that abstract art seems to escape from explanations and words. It is difficult to pin down or capture abstract art within discursive definitions. Understanding art is not only made by using language and analysing from distance but in multisensory ways, using the 'whole' of ourselves by engaging with art. In the fourth article, I come to the same conclusion as Irma Salo Jæger in our conversations about the concept of abstraction. 'Reality is not only made from words. Senses are also reality', Salo Jæger says (Kukkonen, forthcoming b, p. 13).[11]

Bolt (2013) writes that '[...] arts' very materiality has disappeared into the textual, the linguistic and the discursive. According to this conception, art is constructed in and through language. There is nothing outside of discourse and language is its vehicle' (p. 4). She traces the emphasis on language particularly on poststructuralist and postmodernist theories and their '[...] framing of art as primarily social and ideological in nature' (p. 4). 'Central to the constructivist position was the assumption that discourse prescribes what can be thought and what can be represented – whether in writing, speaking, acting, dancing, music, filmic or visual presentations' (Bolt, 2013, p. 4). I

[11] The citation is formed according to the unpublished version of the fourth article at the time of submitting this meta-analysis and, therefore, might differ in the published version of the article.

argue that when discourse and language are considered as preceding the art, it becomes evident why a museum educational situation in the critical tradition is constructed on language, here aiming to 'crack the code', deconstruct the work and dig up the discursive meanings that have prevailed the materiality of the artwork. The material work of art *represents* the discursive order behind it.

In my work as a museum guide, the dialogue-based methods felt especially challenging when it came to abstract art. In the first article, I write, '[...] nonfigurative modernist painting does not have a similar visual narrative like its predecessors before the 20th century' (Kukkonen, 2022a, p. 323). Because there are no already known things, objects, figures or other elements that could be easily recognised, it becomes more challenging to 'translate' a painting into a discursive explanation, and the description becomes easily influenced by subjective associations and impressions, which I was distancing myself from when working as a guide. Abstract painting (and other forms of art with similar characteristics, particularly in contemporary art) can directly challenge the representational logic, offering an encounter with its 'unrecognisable' character. Here, I come back to the difference between *recognising* and *encountering* as described by O'Sullivan (2006) and discussed above. The painting cannot always be easily 'recognised', as in matched with a representation or something that is already known.

When a cut and crack in representational logic occurs, it can also produce an 'affect' (Deleuze & Guattari, 2020/1980, p. 301). In the second article, I study situations where the children try to explain the abstract paintings or their experiences of the paintings from Gunnar S. Gundersen through the use of words, but in the middle of the sentence, they seem to run out of words. They start to use their hands and bodies instead by 'painting' the forms in the air and expressing their experiences to the guide and other children.

In the article, I argue that the *virtual* (Deleuze, 1988/2018, pp. 42–43; Deleuze & Parnet, 2002/1977, p. 148) of abstract art—the potentiality of how the artwork might be experienced—*actualises*, happens and becomes concrete in not only discursive ways, but through *affects*. The *affect* is the intensity of hands swinging in the air and the enthusiastic and determined look on the children's faces when they try to express their thoughts. Following Deleuze and Guattari and Baruch Spinoza, Brian Massumi (2019) says that affect is 'the virtual co-presence of potentials', not so much an emotion but an intensity (p. 5). According to O'Sullivan (2001), affects are 'reactions in/on the body on the level of matter', pointing out that they can be described as 'extra-discursive' and 'extra-textual' (p. 131). 'Indeed, you cannot read affects, you can only experience them' (O'Sullivan, 2001, p. 126). However, although it is difficult to translate the experience

of affect into language, language itself can produce affects. Therefore, affect does not always happen outside of words and language but in-between and beyond the lines, given that language can also have an affective register (O'Sullivan, 2001). The registers of language and affect are not opposites or entirely separate, but they are often entangled and simultaneous.

New materialisms

> As human beings we inhabit an ineluctably material world. We live our everyday lives surrounded by, immersed in, matter. We are ourselves composed of matter. We experience its restlessness and intransigence even as we reconfigure and consume it. (Coole & Frost, 2010, p. 1)

In my ways of understanding art as a researcher and a museum educator, the flat one-world ontology and the notions of representation and hegemony of language shifted my focus to the *materiality* of the artwork and its affective capacities. In my experiments with the concept of abstraction, which have been described in the first article, I spent time with abstract art in different museums, and I made abstract art at home. When making art, I provoked surprises and unexpected situations in the process that might make me feel and sense abstraction, paying close attention to the materialities. In a museum space, I let the paintings move me in the space in subtle and sometimes unexpected ways, and I tried to avoid rationalising the works of art or capturing them in discursive explanations, hence trying not to control the situation as 'the knowing subject' (St. Pierre, 2014, p. 14). I took steps back and forward, the details caught my attention, the images provoked associations in my mind, the hair raised on my arms, or sometimes, I got bored and intuitively walked away. In the second and third articles, I describe the intuitive movements and reactions the children have in relation to abstract art.

New materialisms understand matter not as inert, static, or passive substance, but as agential, relational and unpredictable, constantly changing and becoming (Coole & Frost, 2010; Page, 2018). New materialisms (Bolt, 2004; Kontturi, 2018; O'Sullivan, 2001, 2006; Page, 2018, 2020) follow all material, human and nonhuman, such as artworks, in their movements and processual emergence. 'To follow, then, is to embrace the "work" of art, its material, affective, and relational doings that push it beyond the representational function, offering something new instead of what is already known' (Kontturi, 2018, p. 10). This 'newness', however, is not something absolute because

there is nothing isolated or nonrelational in the flat one-world ontology. It comes into being when things in the world, always related to each other, mix and emerge in new ways and combinations.

New materialisms are not 'new' in their attention to agential materiality. According to musicology researcher Milla Tiainen et al. (2015) '[...] the concepts and problems that new materialist perspectives work with openly resuscitate and modulate previous theorisations concerning bodies, materiality, relations, and process' (p. 6). The multiple aspirations for new materialisms come from metaphysics and philosophy, such as Karl Marx' attention to material and embodied processes in capitalist systems, Martin Heidegger's existential phenomenology, Deleuze and Guattari's process philosophy, and poststructuralist theorists such as Jacques Derrida and Julian Kristeva. Feminist theory, art and fashion studies and neuroscience, among others, have also influenced new materialisms (Kontturi, 2018, p. 204).

Post-qualitative inquiry

The first and fourth articles focus on studying and creating the concept of abstraction. In my previous studies (Kukkonen, 2017), I have similarly been interested in analysing and developing concepts (in my master's thesis, I created a methodological tool of the concepts of *sublime*, *uncanny*, *visual oxymoron* and *aporia* to analyse contemporary art installations). As my ontological understanding has moved from the representational logic and language towards materiality and senses in my doctoral project, my understanding of concepts themselves changed. Concepts do not only wait for me to find them in books and texts in the discursive order: '[...] concepts are not necessarily forms, discoveries, or products' (Deleuze & Guattari, 2009/1994, p. 5). 'Concepts are also 'sensibilia'' (p. 5). Instead of finding a perfect definition that was already there, I started to experiment with the concept of abstraction.

Deleuze and Guattari's understanding of a *concept* (and their multiple concepts) has played an important role in the project. In Deleuze and Guattari's philosophy (2009/1994), concepts do not exist alone in a theoretical dimension, but they become concrete in materialities, encounters and acts of thought (in a flat one-world ontology, there is no hierarchy between the abstract and concrete). 'Concepts are not waiting for us ready-made, like heavenly bodies. There is no heaven for concepts. They must be invented, fabricated, or rather created and would be nothing without their creator's signature' (Deleuze & Guattari, 2009/1994, p. 5). I put the concepts to work when I create, observe, analyse, engage in and wonder about material–relational encounters with abstract art, and I am particularly interested in how abstraction *happens*, that is,

how it becomes *concrete* (this thinking is also connected to the understanding of artworks as situations or event-encounters, as described above). Concepts are then not only theoretical tools that are used to analyse empirical material, but they also function to generate the empirical material itself. In chapter four, I write in more detail about how the concept of abstraction is created and understood in the project.

It was the emphasis on concepts and experimentation that interested me in post-qualitative inquiry, per Elizabeth St. Pierre (2019a). St. Pierre, inspired by Deleuze and Guattari, states that concepts are a 'creative force' (p. 7) and they 'reorient thought' (p. 9). St. Pierre (2019a) writes the following:

> Concepts in the ontology of immanence and transcendental empiricism which inform post-qualitative inquiry are not the same as in conventional humanist social science inquiry in which the methodologist *applies* concepts like *cognition* from psychology, *deviance* from sociology, or *scarcity* from economics to data "collected" in the empirical world of lived experience (see St. Pierre, 2017). (p. 7, original italics)

Post-qualitative inquiry was first introduced by St. Pierre in 2011 to challenge the conventional humanist qualitative research (St. Pierre, 2011). Since then, post-qualitative research has been created and discussed by many others (e.g., Bodén & Gunnarsson, 2020; Jackson, 2017; van der Tuin, 2019). According to St. Pierre, qualitative research has become too formalised and method driven, especially in the United States, which is ironic because it was originally invented in the 1980s as an interpretive social science to challenge the methods-driven approach of positivist social science. Post-qualitative inquiry is linked to ontological, posthuman, affective, new material and new empirical turns (St. Pierre, 2019a). The approach is not the only perspective that has been developed in recent decades and that wishes to do qualitative research in new ways. For example, performative research (e.g., Arlander, 2018; Haseman, 2006; Østern et al., 2021) and nonrepresentational methodologies (Vannini, 2015) emerge from criticisms towards more conventional qualitative research. According to Østern et al. (2021), post-qualitative and performative approaches aim to 'produce the same shift and break away from qualitative research, though coming from different contexts' (p. 3). To put it briefly, the performative paradigm has roots in artistic research, while post-qualitative inquiry originates more from educational and social research.

Unlike ‘conventional qualitative methodology’ (St. Pierre, 2019a, p. 1), post-qualitative inquiry focuses more on ontology and epistemology than methodology (St. Pierre, 2019b). When I began the process of curating the exhibition at the Children’s Art Museum, I started to unpack the ‘ontological hauntings’ (St. Pierre, 2019a) by asking ontological and epistemological questions when studying this concept. What is abstraction, and how can I experience it? Instead of finding perfect definitions of abstraction from literature that I could later apply to the empirical material, hence privileging the discursive over matter, I began to experiment with the concept. Experimentation is an important part of post-qualitative inquiry: the approach encourages the researcher to specifically look beyond the typical patterns, discourses and structures to find the *immanent*: ‘[...] that [what] is everywhere but indeterminate, not yet created, not yet individuated, and organized into the definite’ (St. Pierre, 2019a, p. 4). There are no predescribed methodology and methods to apply in post-qualitative inquiry and no guidebooks that state ‘what to do’ (St. Pierre, 2019a, p. 12).

The experimentation with the concept of abstraction became an important groundwork when curating the exhibition for Sørlandets Art Museum. In the first article, I describe how the experiments and philosophy influenced the curatorial decisions in the exhibition. There are other methodologies that I could have chosen when positioning my investigation of the concept and experiments into a methodological framework, most importantly art-based and practice-based research. The professor in art education, Anette Göthlund et al. (2015), for example, describe art-based research as follows:

> A common trait of arts-based research projects is their will to do methodological experimentation, thinking deliberately out of the box when defining and exploring a research question. Lived experience plays a key role in the effort to grasp aspects of knowledge production that take place through sensuous interaction between the researcher and the object, process or situation she or he engages with. Instead of studying the world from a distance, the researcher focuses on her or his partaking in the (co-)production of an event. Consequently, research projects that claim to be arts-based typically engage with experimental, self-reflective, dynamic, creative, multiperspective and radically qualitative ways of performing the act of ‘doing research’. (pp. 21–22)

However, what intrigued me in St. Pierre’s texts and why I chose to see my experiments as ‘post-qualitative inquiry’ rather than art-based research is the strong emphasis on philosophy and theory, especially that of Deleuze and Guattari in St. Pierre’s texts (see,

e.g., St. Pierre, 2014, 2019a). St. Pierre (2019a) emphasises the importance of studying philosophy to challenge thinking. Another factor that made St. Pierre's texts interesting is their determined tone: post-qualitative inquiry can be considered as rather radical in stating that there are no pre-existing research methodology or research methods (St. Pierre, 2019a). 'Post-qualitative inquiry never "is", it never stabilizes' (2019a, p. 10). The researcher does not 'analyze empirical data', look for 'themes and patterns' or 'code data' (2019a, p. 6). After feeling stuck and frustrated in the representational logic as a museum guide and researcher, the experimentality in St. Pierre's writings was intriguing.

Material–relational situations

How does pedagogy and learning happen in a flat one-world ontology? The third article moves further away from the initial conflict and 'ontological hauntings'. The situations I study occurred in the exhibition I curated for Sørlandets Art Museum. I invited two groups of 5–7-year-old children (groups consisting of ten and six children together with their teachers) to visit the exhibition, and the visits were recorded using stationary and action cameras. The curatorial plan in the exhibition was to create a space where the visitors were encouraged to use their senses and bodies and explore abstract art in experimental ways. In the first and second articles, the situations that I study happened in a more traditional museum space. In the third article, I write less about the conflict between me and abstract art, and I take a more straightforward position in new materialisms.

I study the encounters with abstract art between the children, their teachers and the museum educational space, as *material–relational situations*. Although I do not use this concept explicitly in the other articles, I consider the situations studied in the other texts, too, as material–relational situations. In the first article, I describe my own encounters with abstraction both inside and outside of a museum space. In the second article, I study the experiences of 10–12-year-old children on the guided tour and visiting parts of the *Abstraction!* exhibition. In the fourth article, I encounter abstract art, books and artistic materials with the artist Irma Salo Jæger in her studio, which provoke ideas and conversations and inspire our exploration of the concept of abstraction.

I form the concept of *material–relational* situation from the writings of von Hantelmann (2014) and Page (2018, 2020) in the third article. von Hantelmann writes that every artwork has a reality-producing dimension—performativity—that comes into

being *situationally* in relation to the spectator. Regarding art this way, one can ask, 'What kind of situation does an artwork produce? How does it situate its viewers? What kind of values, conventions, ideologies, and meanings are described into this situation?' (von Hantlemann, 2014, para. 3). This understanding turns away from figuring out only the representational levels of art, here moving towards the more-than-representational effects and affects in situated encounters. Inspired by the British philosopher John Langshaw Austin (1962), von Hantelmann encourages to follow what the artwork *does* instead of what it *says*. O'Sullivan (2006) writes, 'Understanding art practice rhizomatically then entails attending to what we might call its performative aspect, what it does and what it makes us do, as well as to its "knowledge producing" aspects' (p. 20).

> The artwork is no longer seen as representing a mental, internal space or consciousness. Instead it forms part of an external space – which it shares with its viewer – in which meaning is produced in relation to a given situational reality. Internal relations of form and content retreat behind the object's impact on this situation, an impact that throws viewers back on themselves, in a space and a situation. (von Hantelmann, 2014, para. 8)

What happens, then, in these situations, is *material–relational*. Page (2018) considers the entanglements of bodies and matter, the material–relational between the spectator and the artwork, as pedagogical. The pedagogical quality of these relations, or the 'intra-actions' according to Karen Barad (2007, p. 141), have also been studied by other researchers in the field of posthuman educational research (e.g., Murris, 2016; Plauborg, 2018; Taylor, 2013, 2020). The agential, indeterminate and moving matter surprises, interrupts and 'shows us otherwise'; it 'inspires and demands attention, and through engagement with matter, new modes of practice transpire' (Hickey-Moody & Page, 2015, p. 16).

Learning in a material–relational situation, understood in a flat one-world ontology, happens continuously by engaging with the world around us. Everything in the world is relational and in a continuous and dynamic movement: 'Bodies and things are not as separate as we were once taught, and their intra-relationship is vital to how we come to know ourselves as humans and interact with our environments' (Page, 2018, p. 2). Humans are not separate from the world, and subjects are not isolated from objects, given that everything is relational and constantly changing in relation to human and

nonhuman matter. I argue that there are subjects and objects in the world, but the lines are moving and transient.

Given that everything in the world is material–relational, learning can be understood as happening continuously all the time. However, art has a particular capacity to provoke material–relational situations where learning takes place (I write about this capacity in more detail in chapter 4). Following Brian Massumi's, Deleuze and Guattari's and Spinoza's philosophies, O'Sullivan (2006) writes that *meaning* is 'the envelopment of a potential' (p. 21). Learning in material–relational situations is something that *opens* perspectives and meanings rather than *closes* them, provoking creativity beyond the representational order. The museum educational setting at the Children's Art Museum encouraged the children to explore the art with their senses and bodies, and in the third article, I argue that the activities and artmaking in the space entangled the children closer to the materialities. The activities were open and nonlinear in the sense that there were no right or wrong answers, that is, a representation to be decoded, but a space for the children to experiment in their own pace.

In the third article, I describe a situation that occurred four times during the children's visits in the exhibition I curated for the Children's Art Museum. When they entered the space, the children received canvas bags containing coloured plastic sheets and cubes. They were told that they could use the contents of the bag to explore abstract art. First, the children began to sort out the colours by placing them in their own piles and boxes (blue cubes in a blue box, orange sheets in the orange box). When they found out that they could make *art* in the space (they read the note that is in the bag, or me or one of the teachers read the note to them), they began to immediately mix the colours, sheets and cubes. Some of the children then created their own abstract artworks on the wooden installation growing out of the boxes. In the article, I argue that an *intuitive-aesthetic* order took place in the abstract compositions—the children seemed to have a determined plan when they built their artworks, although the order of the cubes and sheets seemed arbitrary. Art making in the space transformed the activity from sorting to creating, *opening* the learning from what is already known (sorting in boxes according to similarity) towards something new (mixing different colours, cubes and sheets in creative ways). Material–relational situations bring out new understandings and perspectives that are not necessarily discursive or logical but *intuitive-aesthetic*. I come back to this in the third chapter.

In the previous sections, I have presented the flat one-world ontology according to Deleuze and Guattari (2020/1980), along with the new materialist and post-qualitative approaches that underpin the doctoral project. I have explained how my approach to arts

and learning as a museum educator and researcher has transformed during my PhD project. The transformation should not be seen as a linear movement from one tradition to the next—for example, from the representational order to nonrepresentational or from language to senses—but rather as an *opening* where the hierarchy of the traditions is flattened and the movement becomes nonlinear and rhizomatic. It is true that language and representation have dominated the arts and field of museum education, and it should be continuously challenged, but this does not mean that one should aim to abandon representational and discursive levels altogether when approaching art in museums.

In the next sections, through the use of methodical reflections, I study how the *creata* has been *created* and how the materials discussed in the four articles have been produced.

Creating creata

When research is understood in the *flat one-world ontology*, it does not represent the truths 'out there', but the research itself creates reality. Following the ethnographer of academic cultures and practices, Eva Bendix Petersen's (2004) writings, I write about *creata* rather than data. The concept of creata makes visible that data are always generated and created by many changing agents and not found from reality as a separate entity (Bendix Petersen, 2004). The empirical materials in a research project do not represent reality but actively create it.

As I have presented in the introduction chapter (see also Figure 2, p. 7), the project can be divided into four entangled parts, or creatas, that all contribute to the overall research question: 1) post-qualitative inquiry as an approach to curating the *Abstraction!* exhibition; 2) observations of 10–12-year-olds at the Gunnar S. Gundersen exhibition and the *Abstraction!* exhibition; 3) visual ethnography study at the *Abstraction!* exhibition; and 4) creating the concept of abstraction with Irma Salo Jæger. The four creatas are studied in the present dissertation's four articles. In addition to Deleuze's (2021/1968, 2018/1988) and Deleuze and Guattari's (2020/1980, 2009/1994) philosophy and new materialisms (Bolt, 2004; Kontturi, 2018; O'Sullivan, 2001, 2006; Page, 2018, 2020), the articles include different approaches: visual ethnography (Pink, 2021), participatory observation methods (Warming, 2007) and post-qualitative inquiry (St. Pierre, 2011, 2019a, 2019b).

Following the lines of flight

The creata in the project consists of many materials gathered in different material–relational situations: my notes and photos of experiments with the concept of abstraction, video recordings of 5–7-year-olds at the *Abstraction!* exhibition, notes taken by hand during the guided tours where 10–12-year-olds encountered paintings from Gunnar S. Gundersen and sound recordings and photos with Irma Salo Jæger at her studio. This material is entangled with philosophy and concepts I have read before, during and after the encounters. An important methodical thread in the project, both in the situations and when studying them afterwards, has been to follow the interruptions and rifts in the process. I pay attention to what might seem and feel perplexing, confusing and problematic. Maggie MacLure (2013) writes about data that 'glow' '[...] a sarcastic comment in an interview, or a perplexing incident, or an observed event that makes you feel kind of peculiar' (pp. 660–661). The ontological hauntings, which I have described in the beginning of this chapter, are also part of this logic.

Deleuze and Guattari's (2020/1980) rhizomatic logic encourages researchers to examine where the representational logic is breaking: 'Always follow the rhizome by rupture; lengthen, prolong, and relay the line of flight; make it vary, until you have produced the most abstract and tortuous of lines of n dimensions and broken directions' (pp. 10–11). *Lines of flight* are ruptures and rifts in rhizomatic things, lines that escape from the representational order and what we already know. This epistemological point of departure is, perhaps, one of the most important but also challenging features of Deleuzean-informed methodologies. 'Lines of flight' can be seen as 'escape routes' from representation, 'allowing us to think differently' (O'Sullivan, 2006, pp. 28–29).

Many unexpected and disrupting moments in the research process have invited me (and sometimes forced me) to diverge from the original plan, here by following the rhizomatic logic through lines of flight beyond representational thinking. In the third article, for example, I describe a situation where a child points at a painting from Irma Salo Jæger during the visual ethnography study at the *Abstraction!* exhibition. She asks, 'Can I go into the artwork?' (Kukkonen, 2022b, p. 87). In the article, I describe how the question surprised and confused me, along with how I struggled to answer her. It challenged me to think beyond representational logic: 'However, I soon understood that the question provoked by the painting was philosophical and playful, not concrete but abstract, and that answering it by rationalising and instructing her would miss the point of the conversation' (p. 87).

In a more conventional humanist research logic, lines of flight can be seen as failures or dead ends. Jackson and Mazzei (2012) describe the conventional humanist logic in research as follows: 'Humanism (and by extension humanist inquiry) draws from Rationalist philosophers of the 17th century who claimed that knowledge of the world is mediated by innate structures, and these innate structures lead us to the universal, unchanging structure of reality' (p. 723). This leans on transcendent two-world ontology, which contains a hierarchy between the abstract and concrete—the ideal and the human-lived, material dimensions of the world.[12] By following methodology like a detailed map from point A to B, the researcher can move from the empirical, human-lived dimension towards the dimension of universal truths, preferably in a linear movement (from the concrete towards the abstract). A line of flight—a misstep, a sudden blast of wind or a bump on the road—is then not a potential that brings something new to the research, but rather, it is a failure that must be corrected to get back on the correct path. To put it simply, the researcher must hold the map tight in her hands and control the situation to arrive at the destination, or the 'right' answers.

In Deleuze-informed methodologies, the map is formed and produced according to the landscape and situations that happen on the way. Deleuze and Guattari (2020/1980) write the following:

> [...] unlike tracings, the rhizome pertains to a map that must be produced, constructed, a map that is always detachable, connectable, reversible, modifiable, and has multiple entryways and exits and its own lines of flight. It is tracings that must be put on the map, not the opposite. (p. 22)

When I observed the 10–12-year-olds on guided tours at the Gunnar S. Gundersen exhibition, I did not expect that the children would spontaneously get up from the floor in the middle of the conversation and move their bodies with the paintings (which I discuss in the second article). Some of the movements were subtle, and some bigger, such as a boy balancing his body like an airplane or a girl looking at a painting while lifting her body up from the floor with her head hanging upside down. It would have been easy to disregard these actions as 'too active' bodies in an educational situation

[12] As St. Pierre (2019a) explains it, '[Transcendent ontology] is based on a two-world ontology like that of Plato in which instances of beauty in the world (the copy, the appearance) refer to and are conditioned by the transcendent, abstract Form of Beauty (the Real, the Ideal), which exists in an originary, transcendent world of first entities and pure essences uncontaminated by human desire, frailty, contingency, and finitude' (p. 4).

focusing on an intellectual conversation and verbal knowledge, and I might have done so in my former role as a museum guide and researcher. However, encouraged by new materialisms and Deleuze and Guattari's philosophy, I began to pay attention to these movements as *lines of flight*, given that they troubled the expected patterns in the situations. Although I had been prepared to take notes of the conversations by writing by hand on paper, I now started to draw quick sketches of the movements and paintings in my notes. The small drawings can be seen as the 'tracings' (Deleuze & Guattari, 2020/1980, p. 22) of the map, produced according to the situations emerging in the research process.

The new knowing subject

To follow the lines of flight and map that is produced on the way is not only exciting and showcasing something new, but I also find it challenging. I argue that one loses some of the comforting control during these situations, and this creates uncertainty. However, not taking the line of flight might end up being stuck in the representational order, a frustration that I describe more in detail in the first article regarding my former role as a museum guide. It is often afterwards that one can see the potential and value in the messy moments of research.

To follow a line of flight, one needs to acknowledge the potential and worth in disruptions and engage in processes where the human-researcher is not always in charge. In some ways, this could be seen as surrendering to the affective materialities. Interruptions in a research process, such as contradictory moments in creata, might be seen as failures in a two-world ontology that is controlled by a human, but they could also be seen as potential in a flat one-world ontology. This does not mean stepping back or observing quietly on the sidelines, but instead, it requires engaging in an ethical way. Kontturi (2018) writes, 'This way of following is not about shadowing a few steps behind, but about opening oneself up to a movement that exceeds the position one holds, the experiences one has had, or the knowledge one possesses' (p. 9).

Post-approaches challenge the conventional humanist researcher positionality, where a human-researcher is 'the author of meaning' and 'interpreter of life with all its limits' (St. Pierre, 2014, p. 14). Instead, like the posthumanist philosopher Rosi Braidotti (2018) writes, the '[...] new knowing subject is a complex assemblage of human and nonhuman, planetary and cosmic, given and manufactured, which requires major re-adjustments to our ways of thinking' (p. 159). The researcher acknowledges the nonhuman agencies in the research process and does not only control and lead, but also

follows and listens the human and nonhuman materialities in the process. In the first article, I detail how the paintings have guided and moved me in my experiments with abstraction, along with how these moments led to further reflections. In the third article, I depict how not only the humans, but also the cameras and material environment where the filming takes place, had agency in the research process. In the article's analyses, I do not follow only the human subject when they engaged with the museum educational setting, but also the nonhuman matter, such as the artmaking components. When I observed the 10–12-year-olds engaging with the digital installation at the *Abstraction!* exhibition, which I discuss in the second article, the creaking floor (and, of course, the digital installation) guided the children's dancing. With Irma Salo Jæger, as described in the fourth article, the different materialities—paintings, books and artistic materials—guided our creation of the concept of abstraction.

Different degrees of experimentation

Although Deleuze and Guattari encourage us to follow the lines of flight, the rhizome also includes 'lines of articulation or segmentary, strata and territories' (Deleuze & Guattari, 2020/1980, p. 2). Research cannot *only* be lines of flight because this would lead to chaos. Kontturi (2018) writes, 'While Deleuze and Guattari encourage us to experiment beyond the limits of recognition, the already known, they do not advise us to surrender to unknown forces altogether. Instead, their lesson is one of dosage: gently deterritorialise your territory [...]' (p. 42). Similarly, O'Sullivan (2006) notes, 'The watchword in this rhizome project is caution. It is not a question of completely abandoning structure or following an absolute deterritorialization, indeed, in such cases your work might move too close to chaos' (p. 33).

The degree of experimentation has varied during the project and in the different creatas. It has been easier to take a line of flight when I study my own experiments and experiences than when my focus is on situations with (human) others, such as children, teachers, museum staff and the artist Irma Salo Jæger. The ethical responsibility in the parts of the project that directly concerned a number of other people was very different than in the parts that mostly concerned my own experiences. I would also work with research participants whom I did not know beforehand, and I did not have much time to build relationships with them. In two parts of the project, I had a less experimental approach on the level of research design: when I observed the 10–12-year-olds on guided tours and at the *Abstraction!* exhibition (article 2) and when the 5–7-year-olds encountered the *Abstraction!* exhibition together with stationary and action cameras

(article 3). By combining new materialisms with participatory observation methods (Warming, 2007) when observing the guided tours and visual ethnography (Pink, 2021) with the 5–7-year-olds at the Children's Art Museum, I was able to build a research design where I could create a balance between structure and experimentation.

Ethics of experiment

Like I have described earlier in this chapter, many concepts from Deleuze and Deleuze and Guattari have been put to work in the project. The *rhizome* (Deleuze & Guattari, 2020/1980, p. 22) has challenged my understandings both of the ontological state of the world, production of knowledge and encounters with art, as described in the first article and this chapter of the meta-analysis. The *virtual* and *actual* (Deleuze, 1988/2018, pp. 42–43; Deleuze & Parnet, 2002/1977, p. 148), as described in the second article, have provoked reflections about the educational potential of abstract art. *Lines of flight* (Deleuze & Guattari, 2020/1980, p. 2) have become surprising moments when observing children in the museum space, among other unforeseen actions in the research process. St. Pierre (2014) calls Deleuze and Guattaris concepts '[...] *futural concepts* with their own speeds and rhythms that slow us down because they don't fit existing ontologies and so open things up, helping us to think new modes of being' (p. 14, original italics). The concepts '[...] can be methods that enable new research practices that can neither be described in advance of a study nor easily described at the end' (p. 14). The present research has taken new and unexpected directions when following lines of flight and the rhizomatic logic.

To follow what is yet to come instead of only confirming what is already known and to acknowledge the agential materialities in the research process is not only an exciting possibility, but it is also an ethical responsibility. Braidotti (2018) writes, 'At this particular point in our collective history, we simply do not know what our enfleshed selves, minds and bodies as one, can actually do. We need to find out by embracing an ethics of experiment with intensities' (p. 190). The experimentation, as described earlier, does not mean jumping into complete chaos of the unknown, but gently challenging representational logic and following the lines of flight. I propose that one needs to be, paradoxically, somehow in a safe position to experiment and challenge the known patterns. This can be done in many ways. As described, I created structure in the research designs by combining the new materialist approach with participatory observation methods (Warming, 2007) and visual ethnography (Pink, 2021). These made it possible to build a flexible groundwork, where it was then easier to further experiment. In the

first article, I write how my own decision to put myself intentionally in uncomfortable situations in my experiments with abstraction paradoxically gave me a sense of control: 'I learned to give up some of the power of planning ahead and being in control as an educator. This is paradoxical since I did this voluntarily and willingly. Therefore, I was implicitly the one setting premises for the situations' (Kukkonen, 2022a, p. 339). With the 5–7-year-olds visiting the *Abstraction!* exhibition, I explicitly said that they could explore abstraction and find out for themselves what it might be before the groups entered the exhibition. In addition, help and support for the experimentation was always available in the space from me, museums staff and the teachers and from the wall texts and a canvas bag with a written task and components for artmaking. The information sheets and letters of consent for the research participants, according to the Norwegian Centre for Research Data (NSD), which are described in more detail in the next section, were also part of constructing a safe groundwork for further experimenting in the research project.

Anonymisation

The project plan was approved by the Norwegian Centre for Research Data (NSD) before implementation, requiring it comply with data protection legislation and what has been documented in the notification form.[13] The participants in the research project (5–7-year-old children and their parents/guardians, teachers and teacher assistants, a museum worker and the artist Irma Salo Jæger)[14] were informed about the purpose of the project, what was required from them as participants, the rights of being a participant and the process of handling and anonymisation of data.[15] It was emphasised that it is voluntary to participate in the study and that the participants can, at any time, withdraw their consent without giving a reason. The participants (and the parents/guardians of the children) received and signed a letter of consent.

The part of the project where I observed eight school groups of 10–12-year-olds with their teacher (altogether 145 students, teachers and one guide), which is detailed in the second article, was not reported to the NSD, given that I collected no personal

[13] Receipt from NSD: see Appendix 6.

[14] In addition, I interviewed an art professional to gather information about the artist Outi Ikkala, whose art was displayed at the *Abstraction!* exhibition. I also interviewed Mirko Lazović, who designed the digital installation in collaboration with Sørlandets Art Museum at the *Abstraction!* exhibition. These interviews were reported to the NSD, but they were not explicitly used or further referred to in the project.

[15] A letter of consent was created for the 5–7-year-olds and their parents: see Appendix 5.

identifiable information during the observations. When the groups arrived at the museum, I was introduced to the group either by myself or by the guide. After a brief description of my research project, the group was asked if I could observe the visit. It was emphasised that participating was voluntary. I would gather no personal information, only notes taken by hand during the encounters. All the eight groups said yes to participating. When I asked the guide if she wanted to participate in my research project, I also informed her that I would pay attention to her actions in the situations.

Although my aim was to be completely transparent that research was going on—to make all the participants know that I was observing them and was there to research museum educational situations with abstract art—it did not always happen because of practical issues and the difficulty of effectively informing large groups of visitors. Some of the participants asked me during the guided tour what I was writing about and who I was (children and adults), meaning that they had not heard or understood the information given at the beginning of the visit. In addition, some children and adults arrived late, which I might not have always noticed. On one occasion, the group was not informed right at the beginning because of a misunderstanding between me and the guide. When these situations happened, I and the guide explained again who I was and asked if it was okay if I continued to observe the situations. Therefore, some level of covert research happened during the observations. An information letter to be sent out to the teachers and students before the observations, for example, could have prevented covert research from happening and strengthened the research design.

Many people working at Sørlandets Art Museum participated in the present research project both directly and indirectly. When personal identifying information was gathered, the participants signed a letter of consent (the visual ethnography study at the *Abstraction!* exhibition). I have decided to anonymise the museum staff when writing and otherwise mediating my research to safeguard the privacy of the individuals working at Sørlandets Art Museum. I write about ‘the museum’, ‘staff’, ‘museum worker’ or the ‘museum guide’. However, it is not possible to fully anonymise the museum staff, with the research having been conducted in a small city like Kristiansand. This could have been explicitly written in the letter of consent and otherwise communicated to the participants to strengthen the research design.

3. The ‘experiential turn’ and post-approaches in museum education

In this chapter, I discuss how the project is situated in the museum educational field. I provide an overview of the field by studying the ‘experiential turn’ (von Hantelmann, 2014) in museum education—how the focus has shifted from museums as authoritative educational institutions mediating knowledge towards situations where the visitors are coproducing experiences. I have categorised different perspectives in museum education into four sections: critical, constructivist, experiential and post-approaches. In addition, I discuss how the different educational perspectives might approach abstraction, drawing in studies that pay special attention to museum educational situations with abstract art.[16]

In articles 1 and 3, I have followed the professor in aesthetics and art theory, Boel Christensen-Scheel’s (2019) discussion of the museum educational field in the Nordic countries, here based on her article ‘Sanselige møter eller kritisk tenkning? Formidling i samtidens kunstmuseer [Sensuous encounters or critical thinking? Mediating art in today’s art museums]’. She writes that there are two overlapping and coinciding paradigms taking place in art museums: *critical* and *experiential* traditions. I broaden the discussion in the articles by drawing in ideas from different authors, adding two other perspectives: constructivist museum and post-approaches. In addition, I study how the project contributes to a posthuman conceptualisation of children in museums.

[16] I have narrowed down the museum educational categories and selection of studies concerning abstract art to what is meaningful in relation to the present project. I acknowledge that there might have been other ways to conduct this selection. I have not included, for example, ‘charismatic’ art education (e.g., Lindberg, 1991; Skregelid, 2019) in the overview. There are various studies in psychology and neuroscience that discuss, for example, how personality traits and thinking styles correlate with aesthetic preferences with abstract art (e.g., Cameron, 1971; Gridley, 2006; 2013; Knapp & Wulff, 1963) or how different brain regions respond to representational and nonrepresentational art (Aviv, 2014; Kawabata & Zeki, 2004; Vartanian & Goel, 2004). In future research, it would be interesting to discuss my project in light of some of these studies. I have also paid less attention to the field of visitor studies, a research paradigm popular in the United States and Great Britain, because the perspectives are often more focused on evaluating exhibitions and programs (Pierroux, 2006). For example, two studies published in the Tate Papers series (Dima, 2016; Scott & Meijer, 2009) discuss visitors’ engagement with learning tools in exhibitions with abstract art, but the studies do not pay further attention to the art form.

Museums as informal educational institutions

> A museum is a not-for-profit, permanent institution in the service of society that researches, collects, conserves, interprets and exhibits tangible and intangible heritage. Open to the public, accessible and inclusive, museums foster diversity and sustainability. They operate and communicate ethically, professionally and with the participation of communities, offering varied experiences for education, enjoyment, reflection and knowledge sharing. (ICOM, 2022)

As stated by the International Council of Museums (ICOM), education is one of the main tasks of today's museums. Museums are informal spaces for learning, differing from formal sites for learning such as schools and universities. One of the pioneers in the field of museum education, emeritus professor Eilean Hooper-Greenhill (2007), describes the informal learning setting in museums as follows:

> Museums are sites of spectacle and display, environments that can be rich and surprising. They can be overwhelming and difficult to manage, but equally arouse curiosity or inspire new ideas. Museum-based learning is physical, bodily engaged: movement is inevitable, and the nature, pace and range of this bodily movement influences the style of learning. Learning in museums is potentially more open-ended, more individually directed, more unpredictable and more susceptible to multiple diverse responses than in sites of formal education, where what is taught is directed by externally established standards. (pp. 4–5)

The educational role of museums can be understood in many ways. It can mean the whole integrated purpose of a museum or activities realised by specialist museum staff (Hooper-Greenhill, 2007). Norwegian sociologist and art critic Dag Solhjell (2007) finds three principal understandings of museum education taking place in museums and the literature. First, museum education can be understood as all the things that are done when art is presented for the public. As seen from a narrower perspective, museum education means particular activities, such as guided tours. Museum education can also be understood from a cultural political perspective, meaning all the things that happen within the art field.

My understanding of museum education in the present doctoral project is closest to Solhjell's first definition. I understand it as a variety of material and immaterial

practices and ways of thinking within museums where art is presented and mediated to the public. This includes (but is not limited to) exhibitions, guided tours, workshops, podcasts, other events, catalogues, brochures and other publications and information online and within the museum. These, together with museum visitors, create the spaces for learning. Whereas museums take different approaches to learning (such as those presented in this chapter), the visitors come from different backgrounds and with different interests. My specific focus in the current project has been in museum educational *situations*, which come into being *material–relationally*, when the museum visitors engage with the museum educational setting. I have presented the concept of the *material–relational situation* in chapter 2.

As a museum educational practice, curating is an important focus in the present project. The *Abstraction!* exhibition I curated for the Children's Art Museum was motivated by museum education, most importantly by the following question, as described in the first article: 'How can I bring out the educational potential of abstract art in an exhibition for children?' (Kukkonen, 2022a, p. 324). Museum education has long been understood as a separate task conducted after the exhibition opens (Engen & Christensen-Scheel, 2022b). However, as the curator Paul O'Neill and the researcher and educator Mick Wilson (2010) write, contemporary curating has gone through an 'educational turn' in the past two decades. Educational processes, programmes and methods have emerged in curating exhibitions, but also in art production. Many museums today emphasise educational perspectives by developing exhibitions that take their starting point in pedagogy (Engen & Christensen-Scheel, 2022b).

Briefly about the museum educational field in Nordic countries

For a long time, research made about museum education in Nordic countries was nearly nonexistent and lacked systematic and empirical groundwork (Illeris, 2004; Solhjell, 2009). Literature written about museum educational practices has increased over the past two decades (Engen & Christensen-Scheel, 2022a). Studies from the professors in art education, Helene Illeris (2004, 2009), Lisbet Skregelid (2019), Venke Aure (2011), Aure et al. (2009), and professor in education Olga Dysthe et al. (2012) and Solhjell (2009) about museum education in Norway and other Nordic countries have been an important groundwork for the growing field. The Norwegian anthology *Kunstformidling – Fra verk til betrakter* [Mediating art – From the object to the spectator] (2019) has also been significant in drawing an overview of the field and critically examining the challenges in present day art museum education, such as digitalisation.

Curator-museum educator at Norway's National Museum Line Engen (2021) writes that art museums have mainly produced art historical research, lacking the time, traditions and methods to study museum educational practices (see also Engen, 2019; Pringle, 2019). The former Head of Research at Tate in London, Emily Pringle's (2019) research about practice-based approaches has been important in introducing ways for museum educators to study their own practice. The recently published anthology *Et Kunstmuseum i endring? Nye formidlingspraksiser i Norden* [The changing Art Museum? New museum educational practices in Nordic Countries] (2022) aims to provide answers to this research gap in the context of Nordic countries; as the editors of the book, Engen et al. (2022) write about the importance of including museum educators' own voices and practice-based research in the field. In the book, professionals from different Nordic countries study their own educational practices in art institutions. In my project, reflecting on my own previous and current practices and roles as a guide and museum educator has also been an integral part of the research.

The critical tradition in museum education

In the first article, I position my former practices as a museum guide within the critical tradition in museum education, and I discuss the challenges that I faced in my former role.[17] Despite the more experimental practices introduced to the field, which I discuss later in this chapter, the critical museum educational tradition still has a dominant role in Norway and elsewhere in Europe (Christensen-Scheel, 2019).[18] An example of museum educational practices within the critical tradition is a guided tour where a guide mediates and discusses art historical and biographical information to and with the visitors while leaving some distance when it comes to subjective and sensory experiences (Christensen-Scheel, 2019). In the context of curating, an exhibition where wall texts focus primarily on artists' biographical information and posit the artworks in art historical canons is also an example of the critical tradition.

[17] Critical tradition in museum education, as discussed here, should not be confused with critical theories in pedagogy (Freire, 1970; Giroux, 2003; hooks, 1994). For more about critical theories in pedagogy, see Skregelid (2019). Christensen-Scheel uses the name *critical museum education,* given that it is inspired by critical philosophy from Immanuel Kant (2007/1790) and critical theory from Theodor Adorno (2013/1970).

[18] I use the term 'critical tradition', given that I also use it in the articles. Skregelid (2019) writes about 'lecturing' art education (*oppdragelsens kunstdidaktikk*), and Solhjell (2009), Bernhardt and Esbjørn (2012) and Hooper-Greenhill (2003) call the paradigm the 'modern museum'.

Hooper-Greenhill (2007) writes about the paradigm as the ‘modern museum’, describing its understanding of museum education, as follows:

> Within this educational paradigm, it is facts and information that are to be learnt, and the processes of grasping the facts and information are expected to be highly focused, purposeful and rigorous. Increased verbal knowledge is the objective, with resources for learning generally limited to the written or spoken word. Teaching methods are cognitive rather than experiential; they privilege the student’s mind, and ignore the (frequently regarded as too active) body. (pp. 2–3)

Within the paradigm, knowledge is often connected to canons in art history, where certain artworks and art historical periods are regarded as something ‘everyone should know’ (Bernhardt & Esbjørn, 2012, p. 26, my translation). Given that the meaning of an artwork is derived most importantly from its art historical context, the knowledge produced in the critical museum educational tradition is rather static. The expert museum educator mediates the carefully studied context, which the public receives, for example, via wall texts, catalogues and guided tours. In chapter 2, I have further studied how representational logic builds a hierarchy between discourse and materiality in museum educational situations.

The museum educational setting discussed in the second article—where 10–12-year-old children participate to a guided tour with art from Gunnar S. Gundersen—can be seen as critical museum education from its outset. The guided tours focused on art historical and biographical information mediated by the guide, and the artworks were placed chronically and according to their style in the rooms. The focus of learning in the exhibition space was on the discursive (the experiential, experimental and sensory learning happened in a workshop and by visiting the *Abstraction!* exhibition, taking place after the guided tour). The children were encouraged to sit still on the floor, and the adults continuously reminded them to keep their distance from the artworks and not touch anything. However, as I describe in the second article, the children challenged the expected learning patterns by disagreeing with the art historical terms and by engaging with the situation by moving their bodies. Although not initiated or particularly encouraged by the adults in the room, the children’s spontaneous moving and sensing with the artworks was mostly welcomed in the situations. In addition, the children were encouraged to share their thoughts and experiences throughout the visits, making the situations participatory.

Although many museums have turned towards more experiential museum educational practices (Illeris, 2015) and I also critically discuss the critical tradition in this project, especially in the first article, it is important to note that these practices can be meaningful and important to visitors. The point in my critique is not that museums should abandon the traditional practices, such as monologue-like guided tours, but that museum education should consist *also* of experimental, multisensory and material–relational situations where the visitors and the artworks have a more active role. As pointed by others (Illeris, 2009; Skregelid, 2019), museums should be explicit, conscious and intentional about the educational perspectives they choose to use.

The constructivist museum

Constructivist philosophies and learning theories, together with postmodernist and poststructuralist theories, have influenced the experiential turn in museum education. The researcher in museum education and education theories, George E. Hein (2006) writes about 'constructivist museum' that 'facilitates meaning making' (p. 347). The museum visitor is no longer a passive receiver of information, but an active coproducer of meaning and knowledge. Meanings occur in a complex situation between the visitors, artwork, museum, museum educator and the larger societal context (Bernhardt & Esbjørn, 2012). Therefore, meanings and knowledge are *made* and *constructed*, not necessarily *found* or *discovered*.

The constructivist perspective acknowledges that the individual positions of the participants, such as gender, age, social and cultural relations, play an important role in the meaning-making and how the situation unfolds. Approach to the artworks becomes more *relational* (Bernhardt & Esbjørn, 2012). The art critic, curator and theorist Nicolas Bourriaud's *Relational Aesthetics* (1998) has been influential in its understanding of art as something that happens in *human relations* and *social contexts*.

In recent decades, Aure (2011, 2013), Illeris (2002, 2006, 2008, 2010, 2015, 2016), Aure et al. (2009) and Skregelid (2019) have developed relational perspectives to art education in museum and school contexts. Skregelid (2019) points out three main perspectives in relational art education, following Aure's (2011) and Illeris' (2002) discourse analysis of the field of art education and visual arts: performativity, meaning-making through relations and equal multivocality and participation. Illeris (2010) characterises relational art education as 'open dialogues, combinations of sensory and reflexive approaches, as well as shifting of roles and positions' (p. 41). The museum educational situation encourages people to learn how art and reality are created in

complex relations. Illeris (2008) writes that the focus becomes not only on *what* one looks at, but *how* one looks and how differently one looks at things depending on who and where one is.

The relational and performative approaches have much in common with the post-approaches in museum education—both emphasise the museum educational situation as dynamic rather than static and challenge representational logic and essentialism. However, post-approaches (in particular those connected to new materialisms) set a greater focus on the agency of materials, along with how learning happens in the entanglements of human and nonhuman matter. Constructivist perspectives might emphasise dialogue-based practices and language as the makers of meaning to a greater extent than post-approaches. In the next paragraphs, I discuss two studies (Hubard, 2011; Pierroux, 2006) with constructivist and socio-cultural perspectives concerning abstract art in museum educational situations.

Hubard (2011) studies open-ended inquiries with museum visitors and the processes of seeking understanding by questioning in her article 'Illustrating interpretive Inquiry: A reflection for art museum education'.[19] She focuses on inquiries with abstract sculptures and artworks that offer 'infinite interpretive possibilities' (p. 166). Hubard explains that interpretive inquiry as a museum educational practice consists of both factual and interpretive questions with visitors in a gallery space. Meaning-making evolves as 'an increasingly complex web of ideas and connections' (pp. 172–173). Given that the goal is not to end up in one right answer, the inquiry could theoretically last forever. The uncertainty in the situation (the possibility of countless answers) is not 'a conflict to be resolved' (p. 175) but is meaningful in itself. 'Multiple visions and readings, even contradictory ones, can together speak to the work's layered meanings' (p. 176).

I have come to similar conclusions in this project. When I observed the children participating in a guided tour with abstract art, which I discuss in the second article, the abstract artworks seemed to endlessly provoke interpretations among the children. In the article, I analyse these situations as a *flow of imagination*, here based on *differentiation*, a character of *virtuality* in Deleuze' writings (2018/1988). I write: 'The same painting is suddenly seen from multiple perspectives, each different to the next. The conversation takes a turn to the unknown and ambiguous in these moments, to a

[19] As Hubard (2011) points out, dialogue-based practices, inquiries and the 'Socratic method' have been widely discussed in the field of museum education (e.g., Burnham & Kai-Kee, 2005; Dysthe et al., 2012; Hooper-Greenhill, 1999, Hubard, 2007; Rebolledo, 2022).

philosophical realm where there are no fixed answers' (Kukkonen, forthcoming a, p. 8).[20] Similarly much like Hubard (2011), I argue that the uncertainty has educational potential: '(...) it can be an excellent site of learning for its potential to break old patterns and think anew, to reject tunnel vision and binary thinking, and to cope better with the unpredictability of everyday life' (p. 8).[21]

However, the uncertainty in abstract art can also lead to frustration and even angry responses, as I describe in the second article, 'This ambiguity and uncertainty might also create discomfort: there were occasions during the observations, where the students described the undecidability and the "lack" of fixed answers in abstract art as bothersome or annoying' (Kukkonen, forthcoming a, p. 8).[22] The professor in education, Palmyre Pierroux (2006) studies situations in which high school students discuss abstract modernist paintings and sculptures in museums and art history classes at school from a socio-cultural perspective. She and others (Samuelsen, 2003, Schwartz & Burnette, 2004) note the same frustration I discuss in the second article—encounters with modern and contemporary art often provoke irritated comments and conversations about what art can be.

Pierroux argues that the encounters might become more meaningful if the students had more contextualising information prior to the visit, given that 'the process of constructing meaning is understood as one that will be accomplished primarily by talking, not by looking' (pp. 146–147). However, although I do agree with Pierroux that contextualising information about the art might make the encounter more meaningful, I do not think that questions such as 'Is the artist playing a joke on people?' and 'What is it the artist is trying to do?' (Pierroux, 2006, p. 146) should be altogether avoided. As I describe in the second article, '(...) these comments were the key moments that led towards engaging and critical conversations of what and how art can be' (Kukkonen, forthcoming a, p. 8).[23] The comments, if taken seriously and welcomed by the museum

[20] The citation has been formed based on the unpublished version of the fourth article at the time of submitting this meta-analysis and, therefore, might differ in the published version of the article.

[21] It would be interesting to study these situations also in light of 'educational dissensus' according to Skregelid (e.g., 2019, 2020, 2021a, 2021b). Inspired by the researchers in education, Gert Biesta (2006, 2014, 2018) and Dennis Atkinson (2011, 2018) and French-Algerian philosopher Jacques Rancière (2004, 2009, 2010), Skregelid studies art educational encounters where the expected and habitual is disrupted. These events might make us recognise our own perceptions and attitudes, hence contributing to democracy.

[22] The citation is formed according to the unpublished version of the fourth article at the time of submitting this meta-analysis and, therefore, might differ in the published version of the article.

[23] The citation is formed according to the unpublished version of the fourth article at the time of submitting this meta-analysis and, therefore, might differ in the published version of the article.

educator, can inspire a situation where the visitors encounter uncertainty and might learn to see this uncertainty as an *affluence* of meanings instead of a *lack* of fixed answers. This situation might also offer an opportunity to reflect about other abstractions in everyday life, moments of confusion and uncertainty and how they might be an opportunity to take a *line of flight*—to get creative, break stuck patterns and think and make anew.

The experiential turn – From autonomous objects to multisensory situations

The researcher in art history, literature studies and aesthetics Nikita Mathias and the director of learning at Munch Museum, Gerd Elise Mørland (2019) state that museum visitors do not go to museums anymore only to be *educated*, but to have good and interesting experiences. In the past decades, many museums in the Western world have turned their focus towards *experiences* and *situations*. Whereas the critical tradition regards ideas and conceptual knowledge as the starting point for an experience, the experiential museum education emphasises sensory ways of learning (Christensen-Scheel, 2019). Visitors are invited to participate in multisensory encounters and activities in the museum space. In the first article, I describe how I turned from the critical tradition towards experiential museum education in my curatorial decisions in the *Abstraction!* exhibition at the Children's Art Museum. Whereas I had previously worked mostly with dialogue-based methods and representational logic, my focus now shifted towards multisensory experiences with abstract art.

The paradigm shift in museum education has happened together with the emergence of new artforms and understandings of what art can be (Bernhardt & Esbjørn, 2012). Immersive installations invite the visitors to move around, stand, watch, listen and touch. In the 1960s, concept art introduced the idea of an artwork as an idea and process. Performance art takes its starting point often directly in actions and events, inviting the museum visitors to participate in the situations. von Hantelmann (2014) introduces the term 'experiential turn' in her widely cited text *Experiential Turn* (2014). She writes that the experience of the visitor has become an integral part of the artwork's conception from the 1960s onward. Von Hantelmann (2014) traces the experiential turn in the arts to broader changes in Western society, referring to the German sociologist Gerhard Schulze's (2005) writings. Increased income and leisure time enables people to form their lives according to their individual desires and aesthetic preferences, so their

choices are no longer based only on necessity. Experience '(...) has become a focus of social, economic, and cultural activity' (para. 1).[24]

Despite the new art forms that might directly invite the visitors to participate, von Hantelmann (2014) reminds us that every artwork has a *performativity*, 'a reality-producing dimension' (para. 2). Art creates impacts and effects situationally 'in a given spatial and discursive context' (para. 3) and relationally 'in relation to a viewer or a public' (para. 3). In museum educational situations, the artwork is understood not only as a representation of its art historical context but as an active generator of a *situation*. Learning emerges not only by verbal means, but also through senses and bodies.

Multisensory experiences with abstract art in the experiential paradigm

According to Christensen-Scheel (2019) and Engen and Christensen-Scheel (2022b), the emphasis on senses in museum educational practices comes from phenomenological (Merleau-Ponty, 2012) and pragmatic (Dewey, 1980/1934) educational philosophies, the motivation to mediate artistic methods and other learning theories. In the present project, the emphasis on senses and bodily ways of learning comes from new materialisms (Bolt, 2004; Kontturi, 2018; O'Sullivan, 2001, 2006; Page, 2018, 2020) and the acknowledgement that materialities, such as abstract art, can often be understood in multisensory ways. The *Abstraction!* exhibition at the Children's Art Museum had experiential solutions in each of the three rooms, along with the climbing cabinet, which encouraged the visitors to explore abstract art with movement and senses.[25] Next, I discuss two studies (Hubard, 2007; Pursey & Lomas, 2018) that encompass multisensory experiences and experiential practices with abstract art.

In the article 'Complete engagement: Embodied response in art museum education' (2007), researcher in museum education Olga Hubard presents five strategies that emphasise embodied engagement with artworks in the gallery space: visitors are encouraged to respond to art with poems, drawing, music, miming artworks with bodies and by forming fast paper sculptures. She writes that embodied learning strategies break from the Cartesian hierarchy between mind and body, where the logical, measurable and cognitive predominate and where physicality, emotions and senses are regarded as less worthy and should be controlled. In one of her examples, a group of graduate students

[24] Given that von Hantelmann's (2014) text is unpaginated, I use the paragraph number (counted from the beginning) instead of page numbers when giving direct quotes.

[25] For a presentation of the exhibition, see Appendix 1.

encounter an abstract painting from the American Abstract Expressionist painter Clyfford Still. The students are invited to first look at the painting in silence and then respond to the artwork by writing down the words that come to their minds. Next, the group forms a poem of all the words. Hubard highlights the intuitive and spontaneous nature of the approach, stressing that the immediate responses can bring forward 'essential aspects of an artwork in particularly poignant and direct ways' (p. 49).

At the Children's Art Museum, my curatorial plan was similarly motivated by the desire to bring out the intuitive character of abstract art in the museum educational setting and to not dissolve the uncertainty of abstraction by rationalising it. 'I did not want to create activities that give children a quick satisfaction or an easy solution, where one pushes a button and things click (since abstract art rarely works like that)' (Kukkonen, 2022a, p. 321). Therefore, the setting emphasised embodied understandings, where abstraction can be explored beyond representational logic. The activities did not have one right answer but were open for experimentation.

In the third article and in the third chapter, I have described situations where the children composed their own abstractions in the first room of the exhibition, next to the paintings from Salo Jæger. The children use not only the designated materials, plastic cubes and sheets, but also other materials found from the exhibition space. In addition, they adjust their feet, hands and faces to the compositions. An *intuitive-aesthetic order* takes place in the abstract artworks: although the abstractions do not seem to follow any logical or rational patterns, they are composed carefully and deliberately by the children who are using their bodies and senses. 'The "order" that takes place is not logical, but intuitive, aesthetic and visual' (Kukkonen, 2022b, p. 91). As Hubard (2007) writes, embodied museum learning strategies can help visitors access aspects of art that escape from rational thought and discursive explanations. They can activate 'embodied ways of knowing that are so essential to aesthetic experience' (p. 48).

Digital solutions and critical perspectives to the experiential paradigm

Tate Sensorium, a six-week immersive exhibition with abstract art, took place at Tate Britain in 2015.[26] Professor in art history, David Lomas discusses the project with Tom Pursey, cocreator of Tate Sensorium, in 'Tate Sensorium: An experiment in multisensory immersive design' (2018). The project displayed four abstract paintings from the museum's collections, together with a technology that can generate sensory

[26] https://www.tate.org.uk/whats-on/tate-britain/ik-prize-2015-tate-sensorium

experiences without actual attachment to the visitor's body. The visitors were guided through the exhibition by a gallery assistant, spending couple of minutes with each painting. With an abstraction from the British conceptual artist John Latham (*Full Stop,* 1961), for example, the visitor would hear music from headphones. By putting one hand inside an ultrahaptics machine, a sensation of touch was created on the skin. The sensation on the hand was 'peppering', demonstrating small paint drops colliding with the canvas (p. 358). With Francis Bacon's *Figure in a Landscape* (1945), the visitors received a dark chocolate ball with a powdery and 'dusty' surface. The taste sensation reflected an art historical narrative, according to which the artist had smeared dust from his studio on the painting. Abstract paintings were selected given that they would leave more room for interpretation and sensory stimuli (Vi et al., 2017).

At the *Abstraction!* exhibition, a digital installation with user-generated technology was installed in the second room of the exhibition at the Children's Art Museum. When the visitors enter the room, an image reflected on the wall by two projectors detected the body of the visitor, and the image began to move according to the visitor's movements.[27] The visual elements in the image, inspired by modern artist Gunnar S. Gundersen's abstract paintings, were able to leave 'traces' after the visitors' movements so that the visitors could 'paint with their bodies' (Kukkonen, forthcoming a, p. 7)[28] by moving in the space. When I observed school groups in the space, the children started to intuitively dance and move with the installation, which I discuss in the second article. The installation was not particularly adding sensory stimulus in an encounter with an original painting, like the digital solutions at Tate Sensorium, even though paintings from Gundersen were displayed in the nearby climbing cabinet, but it functioned as its own independent activity in the museum exhibition.

Both digital solutions (at the Tate Sensorium and *Abstraction!* exhibition) are experiential and experimental. Lomas (in Pursey & Lomas, 2018) writes that the sensory stimulating strategies can provoke memories, narratives and associations while guiding the visitor's attention to certain features of the artwork. This might help visitors 'who may find modern art baffling and are not equipped with protocols for viewing it' (p. 362). Here, Lomas points to the same approach that I propose in my project—to encourage the visitors not only use rational means—given that abstract art cannot always

[27] For a presentation and photos of the digital installation, see Appendix 1.

[28] The citation is formed according to the unpublished version of the fourth article at the time of submitting this meta-analysis and, therefore, might differ in the published version of the article. For a more detailed description and photos of the installation, see Appendix 1.

be understood with conventional logic and that rationalising risks dismisses the affective qualities of abstraction—but to explore abstract art in multisensory ways. However, Lomas also discusses the dangers of over glorifying senses in museums. Tate Sensorium provided additional, heavy sensory stimulation with new virtual reality technologies with abstract art. Lomas notes that the visitors already had their own sensory apparatuses, their own bodies and senses, to use in the encounters, and the extra buzz of exciting new technologies in the museum space might provide more economic benefit than genuine encounters with art.

The Norwegian curator of exhibitions and learning at the Stavanger Kunsthall, Kristina Ketola Bore (2022) and the Finnish curator Saara Hacklin (2022) raise similar critical questions about the experiential paradigm in museums and the 'experience economy'.[29] Ketola Bore writes that sensory ways of experiencing art can create new ways of thinking and embodied understandings, but the experiences need to be balanced with learning strategies that contextualise and bring up critical perspectives. If not, the art field moves towards production without reflection, where visitors are fed with experiences that might resemble more entertainment than art. Hacklin (2022) points out that emotions have a dominant role in today's society. Referring to British art historian Julian Stallabrass' (2006) writings, she writes that eventful, emotional and spectacular installations are the art field's way of bringing people in when museums compete for audience with mass culture. Critical viewpoints are needed, and the art itself can provide those perspectives (Hacklin, 2022).

Post-approaches in museum education

In the previous sections, I have studied critical, constructivist and experiential museum educational paradigms. Although my project is most importantly situated in the experiential paradigm and post-approaches in museum education, a perspective I present next, critical and constructivist paradigms have also influenced this project (as described

[29]I find Pursey and Lomas' (2018) description of the 'experience economy' as telling: 'We live in an experience economy where it is said the acquisitive urge has been replaced for increasing numbers of consumers by a quest for experiences – anything from a night out at a classy restaurant to an exotic holiday – that create memories that hopefully endure, long after the likes on Facebook. If proof of this new reality were needed, there's even an acronym for it: FOMO meaning "fear of missing out". Marketing has latched on to "experience", with corporate brands vying to make their advertising more immersive and the experiences they offer to purchases more memorable. This is the wider commercial context for a surge of interest in multi-sensory experience' (pp. 363–364).

earlier in this chapter). The different perspectives overlap and exist simultaneously in museums as well.

Post-approaches in museum education are a rather new and growing field. In recent years, several studies using post-approaches, such as posthumanisms and new materialisms (Booth, 2017; Feinberg & Lemaire, 2021; Grothen, 2021; Hacklin, 2022; Hackett et al., 2018; Hood & Kraehe, 2017; Medby & Dittmer, 2020; Sayers, 2015) and decolonial theories (Mulcahy, 2021; Rieger et al., 2019) have been made in the field of museum education and closely related fields. In addition, new materialist perspectives have been used in the field of architecture and exhibition design (e.g., Bilegaard, 2018, 2020) and in curatorial practice in various exhibitions within the past decade (Ekeberg, 2015). For example, in 2012, the international contemporary art exhibition *Documenta* in Germany was inspired by object-oriented ontology, a philosophical school of thought related to new materialisms, and Sorø Art Museum in Denmark hosted a series of exhibitions called 'Im-materialitet' in 2012–2014.[30] Kunsten Museum of Modern Art in Aalborg, Denmark, had an exhibition about marble in 2022.[31] The *Marmor* exhibition presented how different artists have approached marble in history, and the wall texts focused on the relationship between humans and the material. With works from antiquity to modern and contemporary art, the texts contemplated the agential qualities of the material, along with its connection to power, status, wealth and beauty. The exhibition also included a 'test station' and 'building station' where the visitors could touch and build their own marble artworks.[32]

Post-approaches emphasise the visitors' relationality to human and nonhuman matter in a museum space. This, as discussed above, is also part of constructivist, relational and performative approaches. However, whereas the constructivist and socio-cultural perspectives might privilege the human subject, socio-cultural context and verbal and cognitive learning perspectives, post-approaches set a greater focus on the agency of nonhuman materialities, embodied knowing and material entanglements

[30] https://sorøkunstmuseum.dk/udstillinger/im-materialitet-no-3-bevidsthed/

[31] https://kunsten.dk/en/exhibition/marble-13711

[32] Engen and Christensen-Scheel (2022b) write that sensory activities where the visitors can interact with artistic materials and processes have been used for numerous decades as part of museum educational practices but usually in the workshop space for children outside of the exhibition rooms. Nowadays, it is common to see multisensory 'stations' taking place in exhibitions. Although it is understandably not possible to always touch delicate artworks, 'example' materials can be placed in exhibitions, offering the visitors an opportunity for more tactile experiences. The common workshop activities, such as artmaking inspired by the artists in the present exhibition, can also take place within the exhibition space.

(Hackett et al., 2018). One asks not only how humans understand, use and make matter such as artworks, but how the *matter makes us*.

In the third article and third chapter, I have presented how learning happens in *material–relational situations*, a concept I formed from the writings of von Hantelmann (2014) and Page (2018, 2020). In short, learning emerges by engaging with human and nonhuman matter in a world that is in continuous and dynamic movement. Learning happens all the time, here given that everything in the flat one-world ontology is material–relational. However, art that escapes from representational logic (art with abstraction) has a special capacity to generate material–relational situations, given that it might engage senses more than conventional logic. The museum educational setting emphasises the affective and more-than-representational qualities of art with open-ended and nonlinear activities and embodied learning strategies. Uncertainty in the situation is educational potential: it offers the possibility to take a *line of flight* (Deleuze & Guattari, 2020/1980; pp. 10–11; O'Sullivan, 2006, pp. 28–29*)*, that is, to experiment and think anew beyond the representational order. However, the material–relational museum educational situation does not abandon structure altogether, even if the setting emphasises experimentation beyond representational logic. The *Abstraction!* exhibition, for example, was anchored in art historical knowledge, and the wall texts offered context and reflection for the artworks and activities.

Posthuman conceptualisation of a child in museums: A child in material–relational situations

The socio-constructivist conceptualisation of children has a dominant role in today's museums (Hackett et al., 2018; Hein, 1998; MacRae et al., 2018). 'Through language, the autonomous child is simultaneously constructed and constructs the world; a world amenable to analysis and interpretation through a process of discursive de-construction' (MacRae et al., 2018, p. 506). Meaning emerges conceptually in the child's mind, and social context and language are emphasised in the process.

The posthuman conceptualisation of a child pays greater attention to nonhuman forces, given that focusing on discourse and social context creates a human-centred framework. As Murris (2016) writes, the posthuman conceptualisation of a child steps away from Cartesian separation of subject and object, knower and known. Agency does not happen 'in' a child, a human subject (p. 29), but always in relation to human and nonhuman others, and the boundaries between subjects and objects become blurred. A child is no longer understood as an autonomous person or constructed only through

social context and discourse, but the child is seen as an entanglement of various material-discursive forces. Murris (2016) writes the following:

> Child is an entanglement; constituted by concepts and material forces, where the social, the political, the biological, and its observing, measuring and controlling machines are interwoven and entwined – all elements intra-act and in the process 'lose' their clear boundaries. (p. 91)

In this project, the conceptualisation of a child (a child in material–relational situations) contributes to the posthuman understanding of the child. In material–relational situations, the line between subjects and objects is similarly 'moving and transient' (Kukkonen, 2022b, p. 79), and a child is not regarded as a separate agent. As argued in articles 1 and 3, learning is understood as a *rhizomatic* (Deleuze & Guattari, 2020/1980) situation of becoming matter. The situations (in the *flat one-world ontology*) are understood as dynamic and moving from their outset, making the roles and positions of children, adults and nonhuman matter less static.

In the current project, I have studied situations in which matter emerges as a teaching agent, interrupting and guiding both children and adults. In addition, I argue that children might be more open towards the entanglements of teaching matter than adults. In the second article, and as already discussed earlier in this chapter, I describe situations where Gunnar S. Gundersen's abstract art provoked *a flow of imagination* and spontaneous movements when the 10–12-year-old children participated in guided tours. The children's sensing and imagination seemed to interrupt the expected learning patterns and surprise the adults in the room. In the same article, I have also described situations where the children danced with the digital installation that was part of the *Abstraction!* exhibition. The dancing emerged intuitively without words in relation to the other students, the digital installation and other nonhuman materialities in the room. A wooden floor made creaky sounds under the children's feet, guiding the dancing, and the children began to play with the sounds. In the third article, a teacher read a wall text and looked around in the exhibition space at the *Abstraction!* exhibition. She had a hesitative and slightly uncomfortable and amused look on her face. When she told a child that the space was 'strange', the child began to guide the teacher through the exhibition, helping the adult understand what was going on in the different rooms.

In the first article, I argue that children

> [...] might know better how to abstract. Adults know the systems of validating knowledge over senses and making sense all too well. [...] Exploring the world with senses and going off-road here and there might be easier for children than for many adults. (p. 328)

The professor in art education Alison Aune (2005) has similarly noted that, as many museum educators might know, children might be more open towards abstract art than adults, who might be intimidated by the task of 'understanding' abstract art (p. 25). The researcher in education Pauliina Rautio (2013) points out that children, as a result of their biophysical and culturally/socially constructed existence, might be more open towards sensuous and surprising, agential entanglements of material surroundings. The researcher in early childhood education Liselott Mariett Olsson (2013), informed by Deleuze (2021/1968), discusses children's affinity with creative thought. She points out that children often ask big philosophical questions and tend to think beyond the representational and what is already known, longing for invention and the new.

However, as Olsson (2013) points out, children's affinity to think beyond representational logic should not be regarded as something 'natural' in a romanticised or primitive manner. I also argue, following Murris' (2016) conceptualisation of the posthumanist child, that children's openness towards teaching matter and thinking beyond representational logic is not something that happens 'in' a child as an unfolding natural and essential ability. Rather, it is regarded as entanglements between the child and the material environment. The difference between children's and adults' openness to teaching matter and thinking beyond representational logic is also socially constructed. As Olsson (2013) puts it, children '[...] are not yet completely stuck within orthodox thought' (p. 251). The education system and society driven by representational thought might outdrive some of the openness when children become adults.

4. Abstraction as an educational approach

In the second chapter, I have presented how learning happens in material–relational situations in the flat one-world ontology. Learning can be understood as happening continuously when we engage and experiment with teaching matter around us. In this chapter, I argue that abstract art has a particular capacity to provoke material–relational situations. I set my focus specifically on this quality in art, which I regard as abstraction. The starting point in the project has been in modernist paintings and prints, given that they might provide a forthright encounter with abstraction, but abstraction can also be found in other forms of art.

In the present project, the concept of abstraction is used as an educational approach and a creative force. In the following sections, I further explain how the concept of abstraction has been created in the project. I discuss how abstraction: 1) is related to the *concrete* in the flat one-world ontology, 2) is used as an educational approach, 3) has educational potential in its uncertainty and how it 4) provokes material–relational situations. In addition to museum educational and new materialist texts, I draw on recent art historical and theoretical literature about abstract art (Arvidsson, 2018; Lind, 2013; Linsley, 2017; Varnedoe, 2006).

Abstraction in the flat one-world ontology

Traditionally, the word *abstract* has been used to describe paintings that are abstracted, taking their starting point in something representational.[33] Nonfigurative and concrete, among others, are used to describe paintings that are completely stripped of representational signs. The artist seeks to create an image that is only referring to itself, to its *concrete* and physical existence.[34] These more conventional art historical definitions take their starting point in the artist's intentions. When the focus shifts from the artist to the material painting and spectator, to the experiential realm, it becomes increasingly difficult to follow the traditional definitions. Contemporary authors writing about the art form (Arvidsson, 2018; Lind, 2013; Linsley, 2017; Varnedoe, 2006) are

[33] The word comes from the Latin *abstractus*, '[...] a word meaning to pull or draw away from. It tends to suggest that abstraction is somehow a derivative or second-order kind of art, drawing away from something the artist has actually seen' (Varnedoe, 2006, p. 47).

[34] Arvidsson (2018) points out that this can '[...] paradoxically enough also be described as realism in a special sense of the word, not as a portrayal of an external reality in accordance with a naturalistic ambition, but as a kind of material realism: the painting does not claim to be anything else than it is, paint on a flat surface. Realism is understood here as the opposite of illusion' (p. 49).

cautious in using the terms in a strict sense, calling the terminology 'slippery' (Linsley, 2017, p. 35) and 'squirming out of grasp (Linsley, 2017, p. 13). This slippery terminology can also be observed in the present project, which is discussed in the second article. When the museum educator stated the paintings are *concrete* and do not represent anything, perhaps to stimulate conversation, the children quickly replied by pointing out multiple figures in the seemingly nonfigurative paintings.[35] Using the terms in a strict sense can be linked to the critical tradition in museum education, where learning focuses on verbal, factual and rigorous knowledge (Hooper-Greenhill, 2007).[36]

As Swedish art historian Kristoffer Arvidsson (2018) writes, the word abstraction also refers to the ideal and *a priori* realm of perfect forms and concepts, as in Plato's (1997) dualist philosophy. Abstraction is understood as a universal, higher and weightless dimension outside of the material world. Its opposite is the concrete, the material and human-lived world. As explained in detail in the second chapter, this project is underpinned by new materialist theory-practice (Bolt, 2004; Kontturi, 2018; O'Sullivan, 2001, 2006; Page, 2018, 2020) and Deleuze and Guattari's (2021/1980) *flat one-world ontology* which do not presume a dualist ontological dimension of abstraction in the world or a hierarchy between the abstract and concrete. The two cannot be separated but are understood as different sides of the same coin. In this project, therefore, abstraction is always studied in relation to the concrete, provoking material–relational situations.

Abstraction as an educational approach

In the fourth article, I study the concept of abstraction with the Finnish-Norwegian artist Irma Salo Jæger, who has worked for more than six decades with abstract art. Two of her paintings were part of the *Abstraction!* exhibition at the Children's Art Museum. In the article, I make the case that abstraction consists of both abstract and concrete elements. In one of the situations discussed in the article, I stand in front of a painting with Irma Salo Jæger at her studio. She describes the painting as *concrete*—as something 'unambiguous' that 'happens fast' (p. 11).[37] In addition to something material

[35] This can also be used as an intentional educational strategy in museum educational situations.

[36] Hooper-Greenhill calls the paradigm the 'modern museum' (2007, pp. 2–3). I write more about the museum educational paradigm in chapter 3.

[37] The citation has been formed based on the unpublished version of the fourth article at the time of submitting this meta-analysis and, therefore, might differ in the published version of the article.

and physical, the word *concrete* can also be understood as something that one can easily grasp and comprehend, in contrast to matters that are complex, confusing and uncertain.

In the article, I use this understanding of the concrete to identify patterns that can create structure and order in abstraction: traditions, theories and mathematical patterns, as in Salo Jæger's art and artistry. The abstract, then, comes from the sensitive and intuitive working progress and the agential and affective properties of the materials—the uncertain, surprising and sometimes confusing elements in Salo Jæger's working progress. The abstract and concrete are constantly becoming each other, creating and breaking patterns. This process creates uncertainty, given that the movement is endlessly ongoing and that the result can never be fixed. This was also the case when we observed the concrete painting with Salo Jæger at her studio: after a while, we began to wonder where the centre of the painting lies and how the colours are affecting each other:

> Then she reminds us that sometimes the seemingly unambiguous can also become very complicated; perhaps the painting we are looking at is not concrete after all. [...] The painting kept on moving and happening, giving us more to wonder about when we stood in front of it. (pp. 11–12)[38]

The same logic could be seen on the guided tours, where the 10–12-year-olds encountered abstract art, as discussed in the second article. A child pointed towards a figure in a painting with certainty but was soon challenged by other's interpretations, and the artwork transformed from something abstract to concrete, from nonfigurative to figurative and back again multiple times.

This philosophical logic of abstraction has been used as an educational approach in the present project. In the first article, I have described how I used the philosophical concept of abstraction as a creative force by intentionally provoking situations where patterns and order (something concrete) are broken. This exposed me to feelings of uncertainty and discomfort in playful ways, making it possible to experiment, think and act beyond what I already knew. The same approach was used in the exhibition design at the *Abstraction!* exhibition. The activities, which contained elements of surprise and unexpectedness, encouraged the visitors to experiment and test out multiple understandings. Playfulness was found to be an important part of the approach. In the third article, I describe this as follows: 'Playfulness makes it possible to experiment, test

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out new understandings and see things from multiple perspectives, given that no actual risk of failure exists' (Kukkonen, 2022b, p. 88). The concept creation with Salo Jæger was also playful: '[...] an open-ended exploration where we experimented with multiple definitions and ideas. [...] Playing made it possible to create a kaleidoscopic understanding of the concept' (p. 14).[39] My understanding of playing in the present project is based on the associate professor Christopher Harker's (2005) writings about playing as being and becoming, as inspired by Deleuze and Guattari's (2020/1980, 2009/1994) philosophy. Harker makes the case that playing does not concern only children, but all ages. Playing can be imaginative and emancipatory, but it can also be serious and contain patterns and order. As I describe Salo Jæger's playfulness in the fourth article: "It means curiously looking at the other side, even if it is difficult, time-consuming and challenging. Her optimism is not naivety or ignorance but patience and wisdom of seeing potential in the multiplicity of things, building a kaleidoscopic view" (Kukkonen, forthcoming b, p. 15).[40]

Philosophical questions are an important part of the approach. In my experiments with abstraction, described in the first article, I ask: What is abstraction, and how can I experience it? At the *Abstraction!* exhibition, questions in the wall texts challenged the visitors to philosophise with abstraction: What are colours made of? Can you see with your eyes closed?[41] Agential matter can also provoke philosophical questions, as described in the third article. A child pointed at a painting and asked, 'Can I go into the artwork?' (Kukkonen, 2022b, p. 87).

Uncertainty as educational potential

In the previous section, I have briefly explained how the philosophical concept of abstraction has been used as an educational approach. As I argue in the articles, abstraction has educational potential, both when it emerges intuitively in encounters with abstract art and when it is used as a conscious educational approach. When order, routines, rules, categories, patterns and conventional logic are broken, the situation becomes unpredictable, and one might lose control. This creates a space of uncertainty

[39] The citation has been formed based on the unpublished version of the fourth article at the time of submitting this meta-analysis and, therefore, might differ in the published version of the article.

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[41] For a detailed presentation of the exhibition and the wall texts, see Appendix 1.

in which the habitual ways of knowing and doing can be contested. In the first article, I describe the educational potential of abstraction as follows:

> Abstraction, both when encountered in paintings and when the concept is used as a creative force, has much potential in educational purposes. Firstly, it is a great and safe opportunity to explore feelings of uncertainty and discomfort. By exposing ourselves to these feelings in playful ways, we might become more curious and tolerant towards uncertainty. Secondly, abstraction is a great tool to shake boring patterns that risk art to become too fixed and stiff. New and creative ideas rarely come from perfection and orderly systems that are stuck in safe methods, routines and traditions. (Kukkonen, 2022a, p. 430)

As studied in the second chapter, Deleuze and Guattari (2020/1980) encourage following the lines of flight, to get creative and think and make anew beyond representational logic. New materialist theory-practice follows all materialities in their processual becoming, which might challenge established positions, experiences and knowledge (Kontturi, 2018). Uncertainty is welcomed in the processes of knowledge production, given that it can disrupt dogmatic thinking. One does not need to arrive at fixed answers but is allowed to experiment and play with multiple perspectives and ways of understanding.

Material–relational situations with abstract art

Given that abstract art challenges representational logic, it can lead towards other ways of understanding. ‘When art is understood materially, as an affective event, it becomes irreducible to function, form and technique. It becomes a force of relations that makes learning felt and inarticulable – in excess of language’ (Springgay & Rotas, 2015, p. 554). Understanding does not only happen through verbal means, conventional logic and rationale, but it also occurs through multisensory ways when human bodies engage with human and nonhuman matter. Learning in material–relational situations in the *flat one-world ontology* happens continuously by engaging with the world around us. However, as new materialist theory-practice (e.g., Colebrook, 2002; O’Sullivan, 2001, 2006) argues, art has a special quality to encourage one to take a line of flight and bring about ‘the possibility of something new’ (O’Sullivan, 2006, p. 2). Colebrook (2002) writes, ‘Art may well have meanings or messages but what makes it art is not its content but its affect, the sensible force or style through which it produces content’ (p. 25).

I argue that this is the case especially with *art with abstraction*. Abstract art (abstract modernist paintings, as well as other art that challenges representation) has a special ability to provoke material–relational situations. Escaping from conventional logic, narrative and representational content that figurative art might have and focusing on aesthetical aspects, such as colours and forms, abstract art engages bodies and senses. In the fourth article, I describe abstraction as follows:

> I propose that abstraction is the uncertain quality in many, if not all, kinds of art. Abstraction is born when representational logic—traditions, patterns and what is already known—is composed in new ways. The patterns are broken and remoulded, so the breaking of patterns paradoxically becomes a pattern. Abstraction is that which diverges from the road, opens rather than closes, touches senses and might escape words and conventional logic. The constant movement of the abstract and concrete makes it slip from our fingers when we are about to catch it. (Kukkonen, forthcoming b, p. 13)[42]

[42] The citation has been formed based on the unpublished version of the fourth article at the time of submitting this meta-analysis and, therefore, might differ in the published version of the article.

5. Summary of the articles

The four articles comprising the second part of the present thesis are summarised below.

1. Abstraction in action: Post-qualitative inquiry as an approach to curating

In the first article, I present the initial conflict where my doctoral project began. The article is a self-study, where I critically examine my former role as a museum guide and the critical tradition in museum education. After being invited to curate an exhibition about abstract art for the Children's Art Museum, I began to experiment with abstraction inside and outside of the museum space to find new ways to approach abstract art outside of the dialogue-based practices. What is the educational potential of abstract art? How can I bring out the educational potential of abstract art in an exhibition for children? These experiments became my post-qualitative inquiry, according to Elizabeth St. Pierre (2019), with an emphasis on ontology and epistemology. During the curating process, I contemplate the philosophical concept of abstraction with Jacques Derrida's (1981, 1993) and Gillles Deleuze and Félix Guattari's philosophy (2020/1980). I move from Derrida's deconstruction to Deleuze and Guattari's ontology of immanence in my ontological contemplations, arguing that the latter allows more action with abstraction.

I argue that focusing strictly on art historical and biographical information and dismissing senses and subjective relations when mediating abstract art to the public might dismiss the educational potential of abstraction, leading me towards experiential museum educational practices in my curatorial decisions. The curating process makes the educational potential visible: abstraction is a safe opportunity to explore feelings of uncertainty and discomfort and an approach to deconstruct stiff patterns to get creative.

2. The virtual of abstract art. Museum educational encounters with concrete abstraction

In the second article, I further study the educational potential of abstract art, as proposed in the first article. By following participatory observation methods with an approach inspired by new materialisms (Kontturi, 2018; Bolt, 2004), I observe eight groups of 10–12-year-old children (altogether 145 visitors) on a visit to Sørlandets Art Museum, where they encounter abstract art from Norwegian modernist painter Gunnar S. Gundersen (1921–1983). The groups participated first on a guided tour with dialogue-based museum educational practices and then visited a digital installation curated by me and created by Serbian artist Mirko Lazović in collaboration with the museum. The user-

generated installation mediated Gundersen's philosophy of concrete art, as inspired by the Swedish artist Olle Bonniér's (1948) writings. When the children encountered the paintings on the guided tour and interacted with the digital installation, the educational potential of abstract art unfolded in conversations and embodied reactions. I theorise the situations with the concepts of *virtual* and *actual* (Deleuze, 2018/1988; Deleuze & Parnet, 2002/1977) and *affect* (Deleuze & Guattari, 1980/2004; Massumi, 2019; O'Sullivan, 2001), arguing that the *virtual* of abstract art *actualises* in discursive and *affective* ways during the observations.

3. 'Can I go into the artwork?' Material–relational situations with abstract art

In the third article, I move further away from the initial problem of mediating abstract art with practices in the critical museum educational tradition, having a more direct starting point in new materialisms. Inspired by Tara Page's (2018, 2020) material and embodied pedagogy underpinned by new materialisms, I ask how learning takes place when two groups of 5–7-year-old children (altogether 16 children and three teachers) visited the *Abstraction!* exhibition I curated for the Children's Art Museum. The visits were recorded with stationery and action cameras, following visual ethnography according to Sarah Pink (2021). I have studied the children's encounters in the museum space as *material–relational situations*, a concept I form from the writings of Dorothea von Hantelmann (2014) and Page (2018, 2020). During the encounters, the abstract art was approached with senses and bodies. A girl asked a surprising question that challenged the taken-for-granted beliefs about what art can be. The children broke rational and logical patterns by creating abstract art, and 'intuitive-aesthetic order' took place in the compositions. A child and adult relate differently to the agential teaching matter. Embodied and material pedagogy with abstract art indicates how 'making sense' of the world is not only done in verbal and logical ways, but also by experimenting with bodies and senses with teaching matter.

4. Abstraction through the kaleidoscope: Playful concept creation with Irma Salo Jæger

In the fourth article, I come back to the philosophical concept of abstraction, which I began to develop and study in the first article. I explore the concept together with Finnish-Norwegian artist Irma Salo Jæger during a day spent at her studio in Oslo. The concept creation is informed by new materialist theory-practice and Deleuze and Guattari's (2009/1994) philosophy of concept. How does an artist who has worked with abstract art over six decades understand the philosophical concept of abstraction? What

is the relationship of abstract and concrete? In addition to the artist and myself, other agents influence the concept creation: paintings, books and artistic materials interrupt and guide the exploration. Inspired by our concept creation, I argue that the concrete can be understood as the elements that create representational logic in abstraction: traditions, theories and mathematical patterns. The abstract of abstraction stems from the representation-breaking qualities: the sensitive and intuitive working progress and the agential and affective properties of the materials. Abstraction has both the abstract and concrete that constantly become each other. Representation is understood as a threshold rather than an impasse. The movement between the abstract and the concrete creates uncertainty, which can have educational potential. Playing (Harker 2005) enables the educational potential to unfold: it makes possible experimenting, balancing between the abstract and concrete and building a complex, kaleidoscopic understanding of the concept of abstraction.

6. Contributions

In the following sections, I summarise the most important contributions and point to openings for future research. Most importantly, this project contributes to post-approaches and, more specifically, new materialist perspectives in museum education. Studying and creating the concepts of *material–relational situations* and *abstraction* contribute to both the theoretical and practical fields of museum education, opening up perspectives for learning. The concept of abstraction, which has been studied and created in the present project, is also used as an educational approach. In addition, I have argued for the educational potential abstract art can have throughout the four articles and meta-analysis. Finally, the project contributes to a posthuman conceptualisation of children in museums.

Post-approaches in museum education

I have studied museum educational situations with abstract art using a new materialist approach. Throughout the present dissertation's meta-analysis and four articles, I have pursued to answer to the overall research question: *How can museum educational situations be created and understood in light of new materialist theory-practice?* To the best of my knowledge, museum educational situations with abstract art have not been studied before to the same extent from a new materialist perspective. By approaching, creating, analysing and conceptualising encounters with abstract art with a new materialist approach (Bolt, 2004; Kontturi, 2018, O'Sullivan, 2001, 2006; Page, 2018, 2020) and the philosophy of Deleuze (2021/1968, 2018/1988) and Deleuze and Guattari (1980/2004, 2009/1994), my purpose has been to open new perspectives to learning with abstract art in the field of museum education. The present project is a contribution to the rather new but growing field of post-approaches in museum education, knowledge that has been called for in previous research (Hackett et al., 2018; MacRae et al., 2018).

According to Jusslin et. al (2021), post-approaches move beyond the assumption that reality can be understood by language alone. Meanings are made in the entanglements of human and nonhuman matter. The textual and discursive have long held a hegemony in the field of arts (Bolt, 2013). Privileging language over materiality and senses can be traced in poststructuralist and postmodernist theories and their focus on social and ideological perspectives in art (Bolt, 2013). This is also the case in museum educational practices, where constructivist and socio-cultural perspectives privilege

verbal and cognitive understandings, paying less attention to affective ways of knowing, material entanglements and the more-than-representational sides of experience (Hackett et al., 2018). This does not mean that dialogue-based practices would not be important. In many of the museum educational situations explored in this project, the *virtual* (Deleuze, 2018/1988; Deleuze & Parnet, 2002/1977) of abstract art, that is, the educational potential of abstraction, *actualises* in both discursive and affective ways. The hegemony of language is challenged to flatten the hierarchy between language and materiality, not to turn it upside down.

Material–relational situations

I have conceptualised encounters with abstract art as *material–relational situations*. I form the concept in the third article from the material and embodied pedagogy underpinned by new materialisms after Page (2018, 2020) and from the performative theory of von Hantelmann (2014). Every artwork has a reality-producing dimension, that is, performativity, which emerges situationally in relation to the spectator (von Hantelmann, 2014). The entanglements of bodies and matter in these situations are pedagogical, and learning can happen when we engage with matter with our bodies in a sociomaterial world (Page, 2018). The pedagogical relations between human and nonhuman bodies—or the intra-actions according to Karen Barad (2007)—have also been studied by others in the field of posthuman educational research (e.g., Murris, 2016; Plauborg, 2018; Taylor, 2013, 2020). Forming the concept of material–relational situation is a contribution to the theoretical and practical fields in art museum education. Approaching, creating and conceptualising encounters with abstract art as material–relational situations can set the focus on learning perspectives that the dominant museum educational approaches might disregard—how learning can happen with materialities through embodied and intuitive understandings beyond representational logic. In future studies, I wish to develop and study this concept further.

Abstract art provoking material–relational situations

In the present project, the concept of material–relational situation has emerged when studying museum educational situations with abstract art. As I have argued in chapter 4, abstract art has a particular capacity to provoke material–relational situations. Although abstraction troubles representational logic and might not be possible to comprehend by rationalising, it can provide sensory experiences and embodied understandings. Using

concrete examples, the current project demonstrates how abstract art engages bodies and senses and provokes imaginative responses, generating material–relational situations.

In the second article, I have studied situations where 10–12-year-olds encountered abstract art from Gunnar S. Gundersen on a guided tour at Sørlandets Art Museum. I argued that the virtual of abstract art was actualised through *affects* (Massumi, 2019; O'Sullivan, 2001). The children reacted intuitively and spontaneously to the abstract paintings by moving their bodies. A boy got up from the floor in the middle of a conversation and looked at a painting by balancing his body like an airplane. A girl looked at a painting by lifting her body up from the floor with her hands and legs while hanging her head upside down. When the children tried to express their thoughts verbally in the conversations, they seemed to run out of words and began to use their bodies and hands to express themselves. When they visited the digital installation at the *Abstraction!* exhibition at the Children's Art Museum afterwards, the children begun to run, jump, dance and sing with the installation. They moved their bodies and intuitively followed the visual elements and each other's movements in the room. The material surroundings, such as the creaking wooden floor, became an active agent in the situation.

The concept of abstraction

The representation-breaking quality of abstract art, provoking material–relational situations, has been studied in the current project through the concept of abstraction. In the first article, the concept of abstraction was used as a 'creative force' (St. Pierre, 2019a, p. 7) to 'reorient thought' (p. 9) according to St. Pierre's (2019a) post-qualitative inquiry. Abstraction was studied in the flat one-world ontology according to Deleuze and Guattari (2020/1980), which challenges dualistic ontologies, where abstraction refers to the ideal and *a priori* realm of perfect forms and concepts, such as Plato's (1997) dualist philosophy. Instead of finding a perfect definition of the concept of abstraction and applying it to empirical material, I used the concept to generate empirical material itself and experimented with the concept in concrete situations. I spent time with abstract art in museums, I made abstract art at home, and I focused on and intentionally provoked other situations in everyday life where representational logic was or became broken. In the fourth article, I have created the concept together with the artist Irma Salo Jæger when visiting her studio in July 2020. The abstract paintings, books and artistic materials at her studio guided our exploration of the concept. In the experiments and with Salo Jæger, the concept of abstraction became *concrete* in artworks, stories, situations and actions; it happened in material–relational situations.

In the four articles and in the meta-analysis, abstraction is regarded as the uncertain and unexplainable quality in art. Abstraction emerges when representational logic is broken, provoking confusion and disorientation. Patterns and traditions are challenged, and what is already known is contested. Although this might also create frustration, given that one might lose control in these situations, it opens new understandings and ways of doing. By breaking old patterns, new ideas and actions might emerge—abstraction becomes an opening to become creative and to experiment and play with multiple understandings. It might be difficult to rationalise the sensations and situations or describe them with words, but they can be felt in senses and bodies and made concrete through artistic responses, as described in the first article.

Abstraction as an educational approach

The concept of abstraction was used as an educational approach when curating the *Abstraction!* exhibition at the Children's Art Museum. Whereas museum education has traditionally focused on separate activities conducted after the exhibition has opened (Engen & Christensen-Scheel, 2022b), the educational perspective was a starting point when curating the *Abstraction!* exhibition. This project can then be regarded as a contribution to the 'educational turn' (O'Neill & Wilson, 2010) in curating and the increased emphasis in recent years on developing exhibitions with educational perspectives in museums (Engen & Christensen-Scheel, 2022b). In addition, post-qualitative inquiry has not been used before, at least in the context of similar material and research questions, as an approach to curating. This can be regarded as a contribution to the theoretical and practical fields of museum education and curating.

The *Abstraction!* exhibition contained activities with surprise and unexpectedness. The exhibition did not give straightforward answers regarding what abstract art is but encouraged the visitors to playfully experiment and test out multiple understandings. The setting emphasised the more-than-representational qualities of abstract art with open-ended and nonlinear activities, philosophical questions and embodied learning strategies. In the third article, I studied 5–7-year-olds visiting the *Abstraction!* exhibition at the Children's Art Museum. When the children entered the first room of the exhibition and received a canvas bag with coloured plastic sheets and cubes, they began to sort out the components according to their colours in the space. When they found out that they could make *art* in the space, the activity changed (although some children also continued the sorting after a while). Linear and logical activity of sorting out colours changed into breaking of patterns and experimentation

when the children began to create their own abstractions. Salo Jæger's paintings, where forms and patterns appear shattered and flowing into each other, were displayed in the room, possibly inspiring the visitors in their artmaking. However, abstract art was not seen as *anything goes*—the children composed their artworks determinately, even if the order of the cubes seemed arbitrary. In the article, I have argued that an *intuitive-aesthetic order* takes place in the compositions, a concept I wish to explore in future studies.

A child in material–relational situations

This project contributes to the posthumanist conceptualisation of children in museums, following Murris' (2016) and MacRae et al. (2018). Given that the positions and roles of children, adults and nonhuman matter in material–relational situations in a flat one-world ontology are constantly moving and dynamic, children are not regarded as separate or autonomous agents but always entangled with human and nonhuman others. Children make matter, but matter also makes children: 'Child is an entanglement; constituted by concepts and material forces, where the social, the political, the biological, and its observing, measuring and controlling machines are interwoven and entwined [...]' (Murris, 2016, p. 91). A posthumanist understanding of children challenges the dominant socio-constructivist model of a child in museums, which might privilege social context and language (MacRae et al., 2018). A posthumanist conceptualisation pays greater attention to nonhuman forces.

In the material–relational situations studied in the present project, matter emerged as a teaching agent, guiding and interrupting children. In article 2, I studied situations where 10–12-year-olds danced with the digital installation at the *Abstraction!* exhibition. The children began to dance intuitively with the projected image and played with the creaky sounds coming from the wooden floor. The elements in the digital installation, inspired by Gunnar S. Gundersen's art, followed and interrupted the children's movements. In the third article, 5–7-year-olds created abstract compositions in the first room of the *Abstraction!* exhibition. The materials—the smooth and tilted wooden surface where the children built their artworks, the soft fabrics of their clothes, the light plastic cubes and the slippery sheets—interrupted the artmaking, and the children had to continuously find new ways to compose their artworks. Other materials in the space, such as the canvas bags, information sheets, their extra clothes and the children's bodies were transformed into artistic matter. The artmaking was streamed into screens elsewhere in the space, and the children needed to collaborate with each

other or climb around the installation to see the compositions appearing on the screens. Through the experimentation in the space, the matter guided and interrupted the children, and learning could happen through the entanglements of the children and the museum's educational setting.

In the third article, I have studied a situation where a teacher seemed hesitant and slightly uncomfortable at the *Abstraction!* exhibition. When she said that the space was 'strange', a child began to guide the teacher through the exhibition. Children might be more open towards material–relational situations and abstract art than adults, given that children might be more attentive and sensitive to the entanglements of nonhuman and human matter in the first place, because of their biophysical and socially/culturally constructed existence (Rautio, 2013). Children have not yet learned all the patterns, norms and representational logic, for example, in a museum space, which might restrict adults when approaching abstract art.

Uncertainty as educational potential

In the second article, I have argued that dialogue-based practices with abstract art can open a *flow of imagination* among children. During the guided tour at the *Gunnar S. Gundersen – Groundbreaking Modernist* exhibition, the children pointed at figures in the nonfigurative paintings, surprising the adults with their imaginative responses. The children explained with words and showed with their bodies, sometimes simultaneously, how the images reminded them of something familiar. I argue that the *flow of imagination* is based on *differentiation*, a character of *virtuality* (Deleuze, 1988/2018). Representation becomes a threshold between recognising and encountering art, where one can move further and beyond. The abstract artwork suddenly transformed into multiple images, each different than the next, and the situation took a turn into a philosophical realm where there were no fixed answers. The children turned their bodies and heads when they tried to perceive the figures pointed at by their classmates, trying to comprehend how the others saw the painting.

I argue that the uncertainty in abstract art has educational potential. In the second article, I summarise this as follows:

> I suggest that we should stay and play in the realm of uncertainty – it can be an excellent site of learning for its potential to break old patterns and think anew, to reject tunnel vision and binary thinking, and to cope better with the unpredictability of everyday life. Abstract art is a safe and fun way to expose

> children (and adults) to contradictions and ambiguity. In addition to uncertainty as an important site of learning, such conversations can have other educative benefits, too. According to Dysthe et al. (2012), a dialogue that opens for wondering, counter-perceptions and further reflection, promotes democracy and multivocality in the group. (Kukkonen, forthcoming a, pp. 8–9)[43]

Final thoughts

I hope that the present thesis can inspire other museum educators, curators and researchers in the field to pay attention to the thrilling, surprising, confusing and sometimes troubling situations with abstraction. Abstraction invites us to play with uncertainty, get creative, find new connections and think and make anew. The breaking of representational logic and moving beyond what is already known might create discomfort, but when done gently and playfully, one might become more comfortable with being uncomfortable and build tolerance towards uncertainty. Although this is the case particularly with abstract modernist art, the representation-breaking quality can also be encountered in other types of art.

Understanding does not happen only by words and conventional logic, but also by engaging with the sociomaterial world with senses in material–relational situations. The museum educational setting can both hinder and support this kind of knowledge production. Both experiential museum educational paradigm and post-approaches (and to some extent the constructivist museum) emphasise the importance of senses, but post-approaches place a greater focus on the agency of materials, moving beyond human-centredness. To carefully follow, to listen to and to experiment with agential materials—to take a line of flight—becomes not only an exciting possibility, but also an ethical responsibility. This enables the virtual to actualize and the educational potential to unfold in sometimes surprising ways.

[43] The citation has been formed based on the unpublished version of the fourth article at the time of submitting this meta-analysis and, therefore, might differ in the published version of the article.

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Appendices

Appendix 1. Presentation of the *Abstraction!* exhibition

Appendix 2. Presentation of artists and artworks at the Abstraction! exhibition

Appendix 3. Observations of school groups on a guided tour and at the *Abstraction!* exhibition (Practical information, exhibition photos and structure of the visits)

Appendix 4. The visual ethnography study (Timetable, structure of the visits and positioning of the cameras)

Appendix 5. Letter of consent (students and parents)

Appendix 6. Receipt from NSD

Appendix 1. Presentation of the Abstraction! exhibition

Abstraction! 4.9.2020–24.1.2021.
Children's Art Museum (a section dedicated for children inside Sørlandets Art Museum)

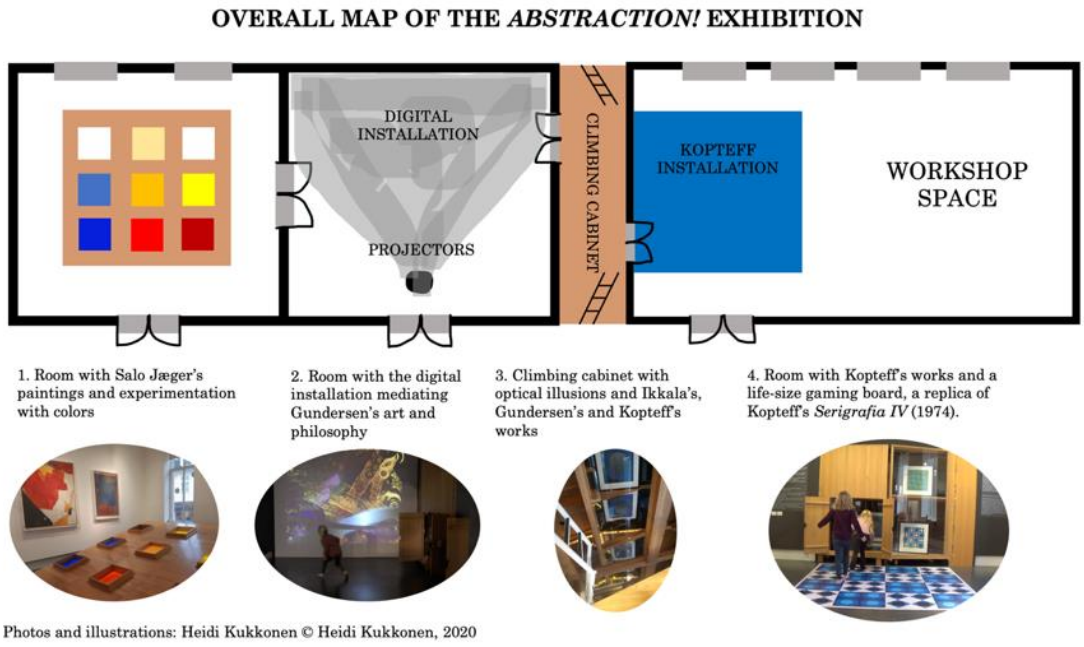

Figure 4. Overall map of the *Abstraction!* exhibition. Heidi Kukkonen © Heidi Kukkonen, 2020

The exhibition took place in three rooms and a climbing cabinet. The space has an experiential character in its fundaments. When the section was established in 2014, its goal was to provide a space for children where art can be experienced through play and senses, in the children's own premises (Liven, 2015). The space has large wooden constructions inspired by curiosity cabinets from the Renaissance, where children can roam and climb around artworks designed by the architect firm Stiv Kuling.

The curatorial plan was to create a museum educational setting where the visitors can explore abstract art with senses, action and philosophical wondering. The activities in each room are open in the sense that there are no fixed answers but instead room for experimentation. Digital solutions,

including a user-generated digital installation, are used in the space. The wall texts in each room provide an art historical context together with philosophical and wondering questions.

Although the main target group was 0–10-year-old children, my aim was to engage the adults as well in the wall texts, for children must always be accompanied with an adult at the Children's Art Museum.

In total, 15 paintings and prints from four Finnish and Norwegian artists from the Tangen Collection were exhibited at the Children's Art Museum: Irma Salo Jæger (b. 1928), Outi Ikkala (1935–2011), Vladimir Kopteff (1932–2007) and Gunnar S. Gundersen (1921–1983).

The exhibition was funded by AKO Foundation.

The exhibition at Sørlandet's Art Museum's website:

https://www.skmu.no/utstillinger/abstraksjon/

Press release:

https://kunstsilo.no/pressemelding-arkiv-nyskapende-kunstutstilling-for-barn-pa-sorlandets-kunstmuseum/

1. ROOM WITH SALO JÆGER'S PAINTINGS AND EXPERIMENTATION WITH COLOURS

The first room exhibited two paintings from Irma Salo Jæger: *Breakthrough* (1965) and *The Well Spring appears* (1961) (see also Figures 18 and 19). Both were created with oil painting on canvas. The works were protected with acrylic glass. The lighted cabinet boxes in the room were covered with coloured sheets inspired by the colours in Salo Jæger's paintings.

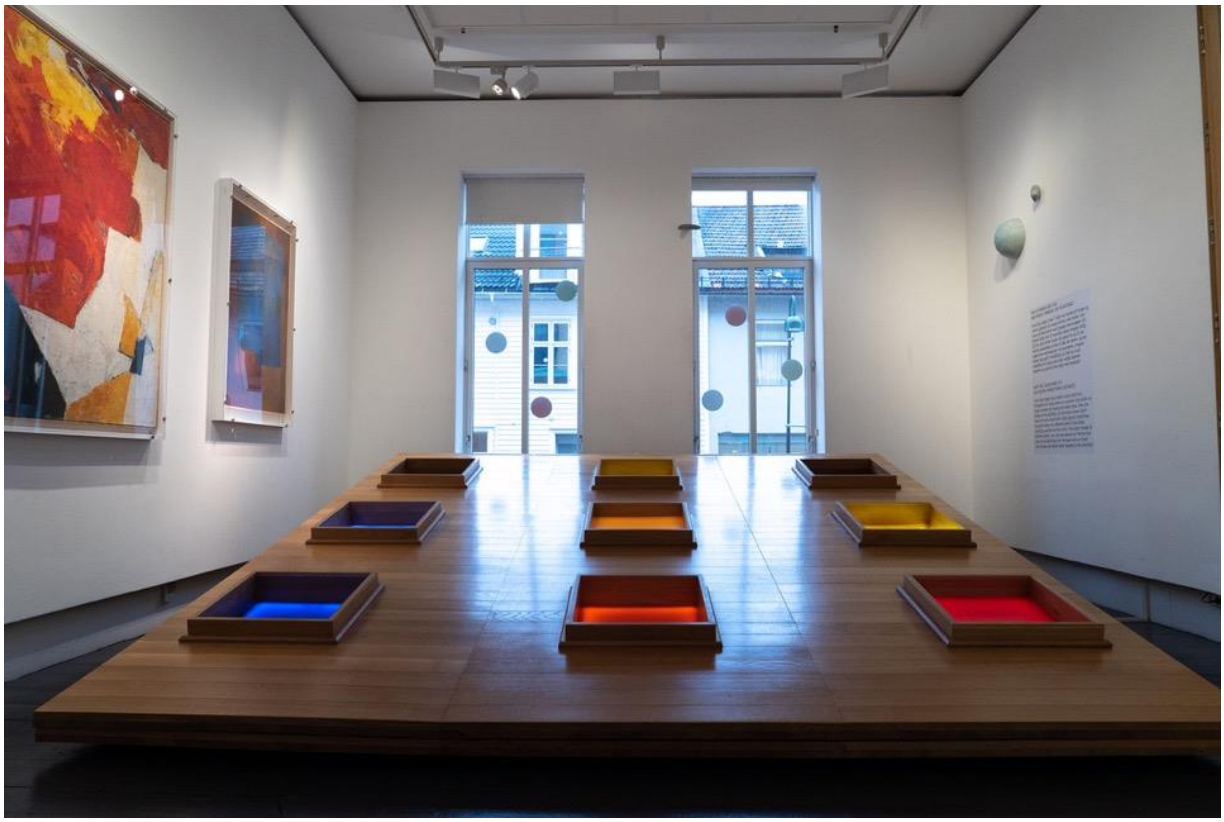

Figure 5. First room of the *Abstraction!* exhibition with *Breakthrough* (1965) and *The Well Spring appears* (1961) from Irma Salo Jæger. Photo: Sørlandets Kunstmuseum, 2020.

Figure 6. First room of the *Abstraction!* exhibition with *Breakthrough* (1965) and *The Well Spring appears* (1961) from Irma Salo Jæger and *Fantasihjelmen* (2012) from Tori Wrånes. Photo: Sørlandets Kunstmuseum, 2020.

Figure 7. Experimenting with colours and creating abstract art in the first room of the exhibition. Photos: Heidi Kukkonen © Heidi Kukkonen, 2020

The visitors received a canvas bag with transparent cubes and sheets to experiment with colours and lights and create their own abstractions in the space. One of the boxes in the cabinet contained an action camera, and the spontaneous artmaking appeared on two screens under the installation.

A note inside the bag helped the visitors get started:

'Did you know that colors are actually made of light? This bag is for you to create your own abstract artwork. Can you find new colors and forms? Maybe you can find your temporary artwork when you crawl under the cabinet ...? Have fun!'

Figure 8. First room of the *Abstraction!* exhibition. Photo: Sørlandets Kunstmuseum, 2020.

WALL TEXTS IN THE FIRST ROOM

WHAT IS ABSTRACTION?

It can be difficult to describe abstract art with words, and we might not understand abstraction right away. We need to explore abstract art with our senses, by looking carefully at colors, forms and lines. Does it look like something familiar? Or is abstract art pictures of nothing? Do you feel happy or annoyed, but it is difficult to say why? Here, you can explore abstract art with your whole body!

WHAT ARE COLORS MADE OF? CAN COLORS CHANGE FROM A DISTANCE?

Irma Salo Jæger has studied colors and forms throughout her long career as a painter. She paints on large canvases by moving her whole body. Then, she listens to the painting. Do the colors sound right? Have the forms found their right places? Sometimes, the paint looks very different when it has dried, creating surprises for the artist. The colors change in different lights, too. Can you balance on the box and look at the paintings from far away and up close? From below and above? What happens to the painting?

DIGITAL INSTALLATION: ROOM 2

A digital installation inspired by Gunnar S. Gundersen's art and concretist philosophy according to the 'Nordic manifest' of concrete art by Olle Bonniér (1948) was housed in the second room. The installation was created by the Serbian artist Mirko Lazović in collaboration with the museum. Two projectors reflected an image on the wall inspired by Gundersen's art. Forms and metallic colours referring to Gundersen's *Black Sun* (1967) (see Figure 35 in Appendix 3) moved on the wall in a darkened room. When a visitor entered the room, a Kinect sensor recognised the body of a visitor, and a circle appeared in the image. The circle would move according to the visitor's movements, drawing a tracing pattern on the picture. Some of the elements had randomness programmed into them, interrupting, following and poking the visitor's circle.

Figure 9. Child dances with the digital installation during the visual ethnography study. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

Figure 10. I point towards a yellow circle depicting my movements in the space. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

Figure 11. The projectors in the digital installation. Photo: Sørlandets Kunstmuseum, 2020.

WALL TEXT IN ROOM 2

A ROOM WITHOUT WALLS!
CAN YOU SEE THE RHYTHM?

Gunnar S. Gundersen (1921–1983) wanted his paintings to have a good display of rhythm. But what does rhythm look like? He painted imaginary spaces, where forms are floating in the air. Can you imagine a room without walls or gravity? Here, you can step into a room that is inspired by Gunnar S.' art. But watch out! The room changes all the time.

3. CLIMBING CABINET WITH OPTICAL ILLUSIONS

The climbing cabinet between the second and the third rooms had three floors and glass cabinets to display artworks. The aim was to display abstract art with optical illusions and mirror motives from Outi Ikkala, Gunnar S. Gundersen and Vladimir Kopteff inside the cabinet. I covered parts of the walls, floors and ceilings inside the cabinet with a reflecting mirror folio, creating an immersive 'house of mirrors' effect. When two mirrors were installed on opposite walls, the visitor could see an 'infinite' reflection in the mirrors.

Figure 12 (left). Inside the climbing cabinet's first floor. Gunnar S. Gundersen's *Blue and green composition* (1969) in the cabinet. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

Figure 13 (right). The cabinet during the building of the exhibition. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

Figure 14. Inside the climbing cabinet's third floor with Outi Ikkala's *Hommage to Sam Vanni* (1978) and Vladimir Kopteff's *Dimension Budapest* (1981). Photo: Sørlandets Kunstmuseum, 2020.

Figure 15. Inside the climbing cabinet's first floor with Outi Ikkala's work (title unknown, 1970). Photo: Sørlandets Kunstmuseum, 2020.

4. ROOM WITH KOPTEFF INSTALLATION

The last room focused on concrete art with mathematical rules. Two large screen prints from Vladimir Kopteff were installed on the wall: *L* (1977) (95 x 95 cm) and *M* (1977) (95 x 95 cm). The glass boxes within the climbing cabinet displayed more art from Kopteff and Ikkala.

A large replica of Kopteff's *Serigrafia IV* (1974) was installed on the floor, and the original work was displayed in the cabinet. The carpet-replica was like a life-sized board game with its abstract and playful patterns. The wall text invited visitors to contemplate and create their own rules and play an abstract game. On the other side of the cabinet's entrance, a wall text about Ikkala's art challenged the visitor to reflect on the complexity of perception and test the abstract ideas out with a concrete experiment.

Figure 16. Fourth room with the Kopteff installation. Photo: Sørlandets Kunstmuseum, 2020.

WALL TEXTS IN ROOM 4

WE LOST THE RULES OF THE ABSTRACT GAME!
CAN YOU CREATE NEW RULES?

Vladimir Kopteff (1932–2007) followed mathematical rules when he made art, but his art was called concrete, not abstract! Together with other artists, he studied how colors and forms play together. When he grew older, his rules became stricter. He abandoned most colors and soft forms and used only black and white squares in his works. Here, you can play on a life-sized gaming board and create your own rules.

CAN YOU SEE WITH YOUR EYES CLOSED?

Outi Ikkala uses geometrical forms that play tricks on our eyes. Are the forms moving or are they still? What happens when you move around the painting? Ikkala made black and white 3D-models with computer programs already 30 years ago. When the 3D-model was finished, she followed the forms and painted a new artwork on a canvas with colors. Like computers, our eyesight is very complicated. You can test this by looking at a lamp and then closing your eyes. Is the light still there?

Appendix 2. Presentation of artists and artworks at the *Abstraction!* exhibition

IRMA SALO JÆGER

Irma Salo Jæger was born in 1928 in Soini, Finland. After studying art history and aesthetics at the University of Helsinki and studying abroad in Germany, Italy and Switzerland, Salo Jæger resided in Norway in the 1950s. She has worked for over six decades with abstract painting and is considered one of the pioneers of abstract art in Norway (Hansen & Ugelstad, 2016). She had her first solo exhibition, which contained abstract and figurative paintings, at the Artist's Association in Oslo in 1962. Like the art historian Øystein Sjåstad (2016) writes, it is difficult to place Salo Jæger's art in canons. Her art combines the abstract and concrete, analytical and intuitive, and mathematics and spontaneity.

Figure 17. Salo Jæger at her studio in Oslo in July 2020. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

Figure 18. Irma Salo Jæger, *The Well Spring appears,* 1961. Oil on canvas, 116 x 81 cm. AKO Kunstiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Figure 19. Irma Salo Jæger, *Breakthrough*, 1965. Oil on canvas, 145 x 120 cm. AKO Kunstiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

GUNNAR S. GUNDERSEN (1921–1983)

Gunnar S. Gundersen was born in Førde, Western Norway, and he studied at the National College of Art and Design and the National Academy of Art. His art, especially in the 1960s and onwards, is characterised by circular and elliptical shapes, silvery colours and clear, geometrical forms. Important inspirations for Gundersen were, for example, the Hungarian French artist Victor Vasarely (1906–1997) and the Swedish artist Olle Bonniér's writings about concrete art (Kokkin, 2020). Bonniér writes that a painting should challenge the spectator's perception and create movement with a dynamic composition (Bonniér, 1948). See also Appendix 2.

Figure 20. Gunnar S. Gundersen, *Blue and green composition*, 1969. Screen print, 54 cm x 46 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Figure 21 (left): Gunnar S. Gundersen, *Pink and orange composition*, 1969. Screen print, 53 cm x 46 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Figure 22 (right): Gunnar S. Gundersen, *Pink and orange composition*, year unknown. Screen print, 60 cm x 58 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

The two almost identical screen prints were displayed inside the climbing cabinet at the *Abstraction!* exhibition to play with the mirror motif and create a classical 'find the differences' task.

Figure 23. Inside the climbing cabinet. Gunnar S. Gundersen, *Pink and orange composition*, 1969. Screen print, 53 cm x 46 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

OUTI IKKALA (1935–2011)

Outi Ikkala was born in 1935 in Helsinki. She studied at the Free Art School in Helsinki (1955–1956) and at the Finnish Academy of Art (1956–1960). Ikkala was part of a Finnish constructivist group called 'Group 4' (*Ryhmä 4*). Many of her paintings are explorations of light and movement. In a text written in 1974, she describes that, in her paintings, light consists of the relationship of colours. Every painting is its own source of light, and each work has its own reality (Ikkala, 1974).

Ikkala was ahead of her time in many ways, creating the first abstract work of art as her final work at the Art Academy in Helsinki in 1959 (Karjalainen, 2008; Karjalainen & Pusa, 2008) and using computers to create graphics already in the 1980s (Valjakka, 2021).

Figure 24. Outi Ikkala, *Hommage to Sam Vanni*, 1978. Watercolour on paper, 47,5 x 40,5 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Figure 25. Outi Ikkala, title unknown, 1970. Watercolour on paper, 53 cm x 45 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

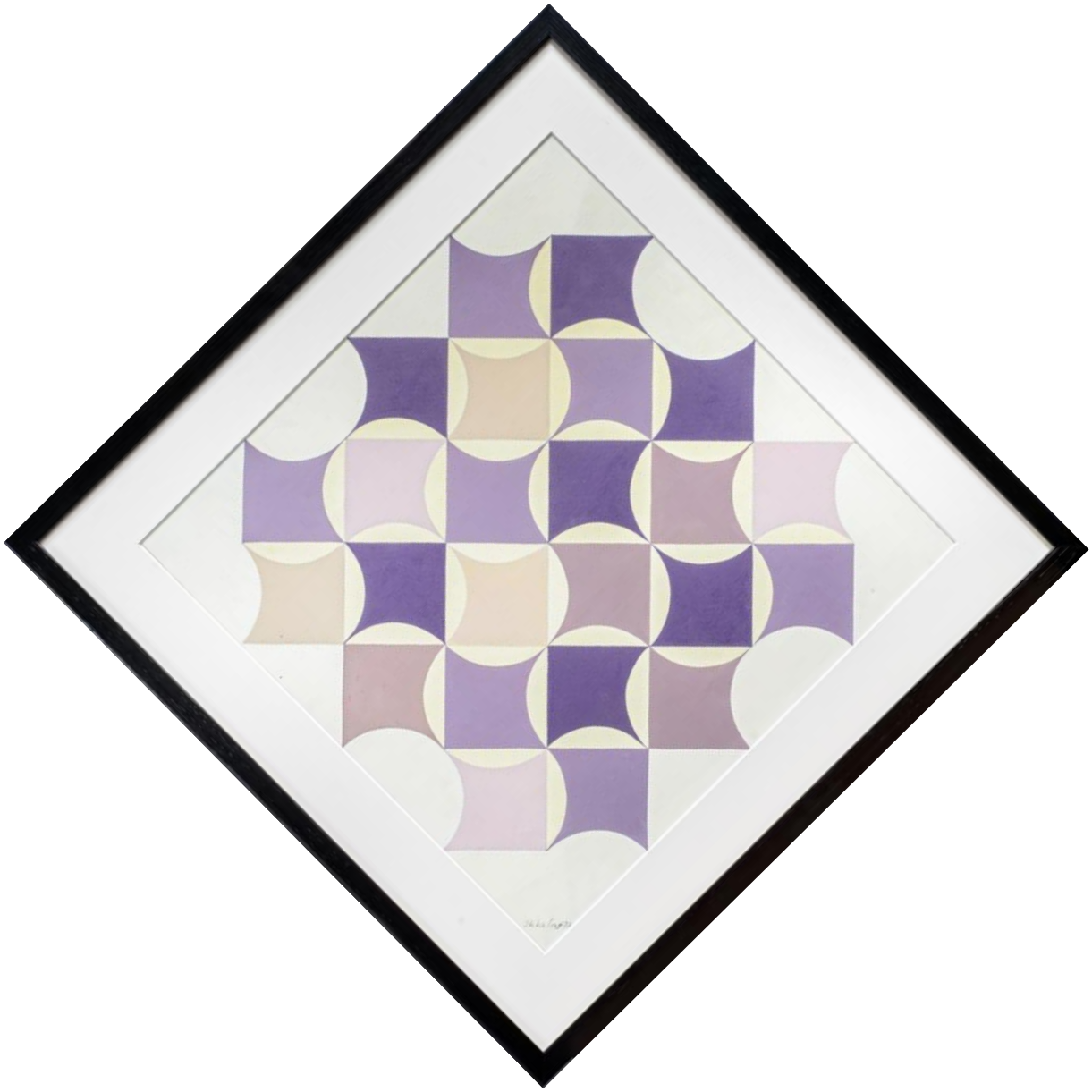

Figure 26. Outi Ikkala, *Diagonal*, 1977. Acrylic paint on paper, 47,5 cm x 48 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Figure 27. Outi Ikkala, title unknown, 1978. Watercolour on paper, 40 cm x 40 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Figure 28. Outi Ikkala, title unknown, 1976. Watercolour on paper, 48 cm x 39,5 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Figure 29. Outi Ikkala, *Transparent light,* 1977. Acrylic paint on canvas. AKO Kunststiftelse/The Tangen Collection. The painting was displayed at *The New Beauty – Modernist Highlights from the Nicolai Tangen Collection* exhibition at Hämeenlinna Art Museum, Finland (May 13–October 17, 2021). Photo: Heidi Kukkonen © Heidi Kukkonen, 2021

VLADIMIR KOPTEFF (1932–2007)

Vladimir Kopteff was born in Vyborg in 1932. His art was inspired both by Russian avant-garde through his own family roots in Russia, and New York, where he lived in the 1960s (Kopteff-Gerevich & Kopteff, 2010; Valjakka, 2021). In the mid-1970s, Kopteff moved to Hungary. He took part in the collective exhibitions and symposiums of the *International workgroup for constructive art*, a group dedicated to systematic constructivism. Kopteff's works from the 1970s are characterised by mathematical rules and playful patterns. 'For years, I have explored how form and colour play together, one of the most interesting areas in constructivist art' (Kopteff, 1976, unpaginated, my translation from Finnish).

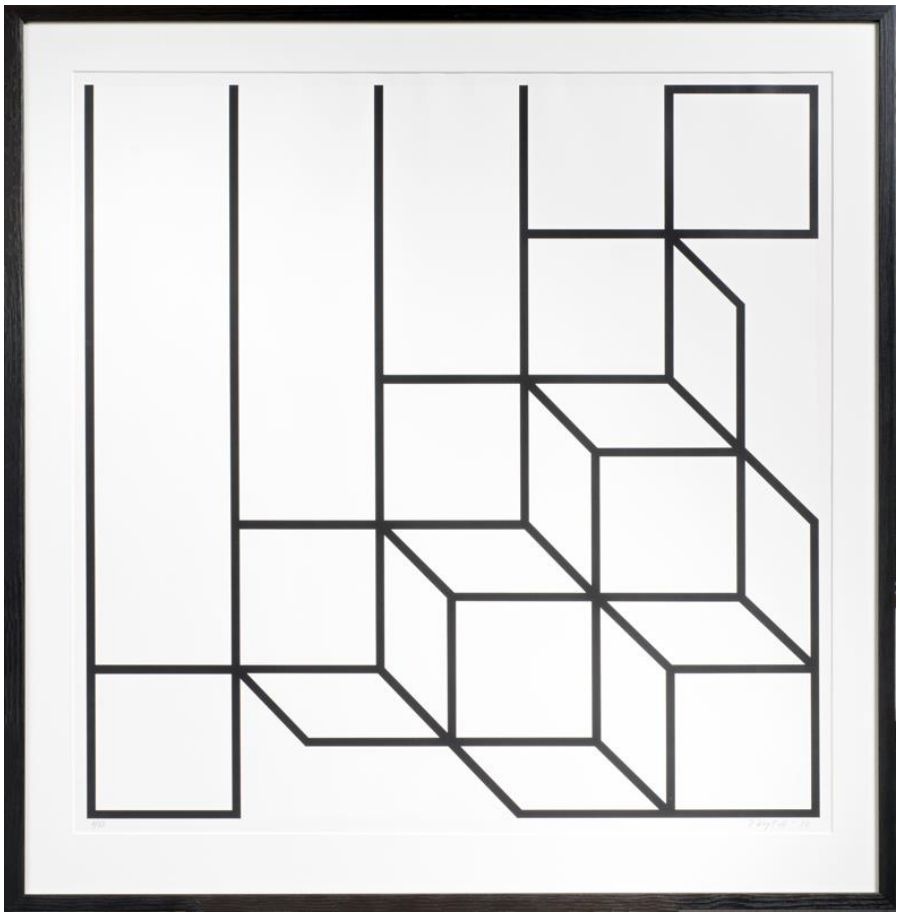

Figure 30. Vladimir Kopteff, *M*, 1977. Screen print on paper, 95 cm x 95 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

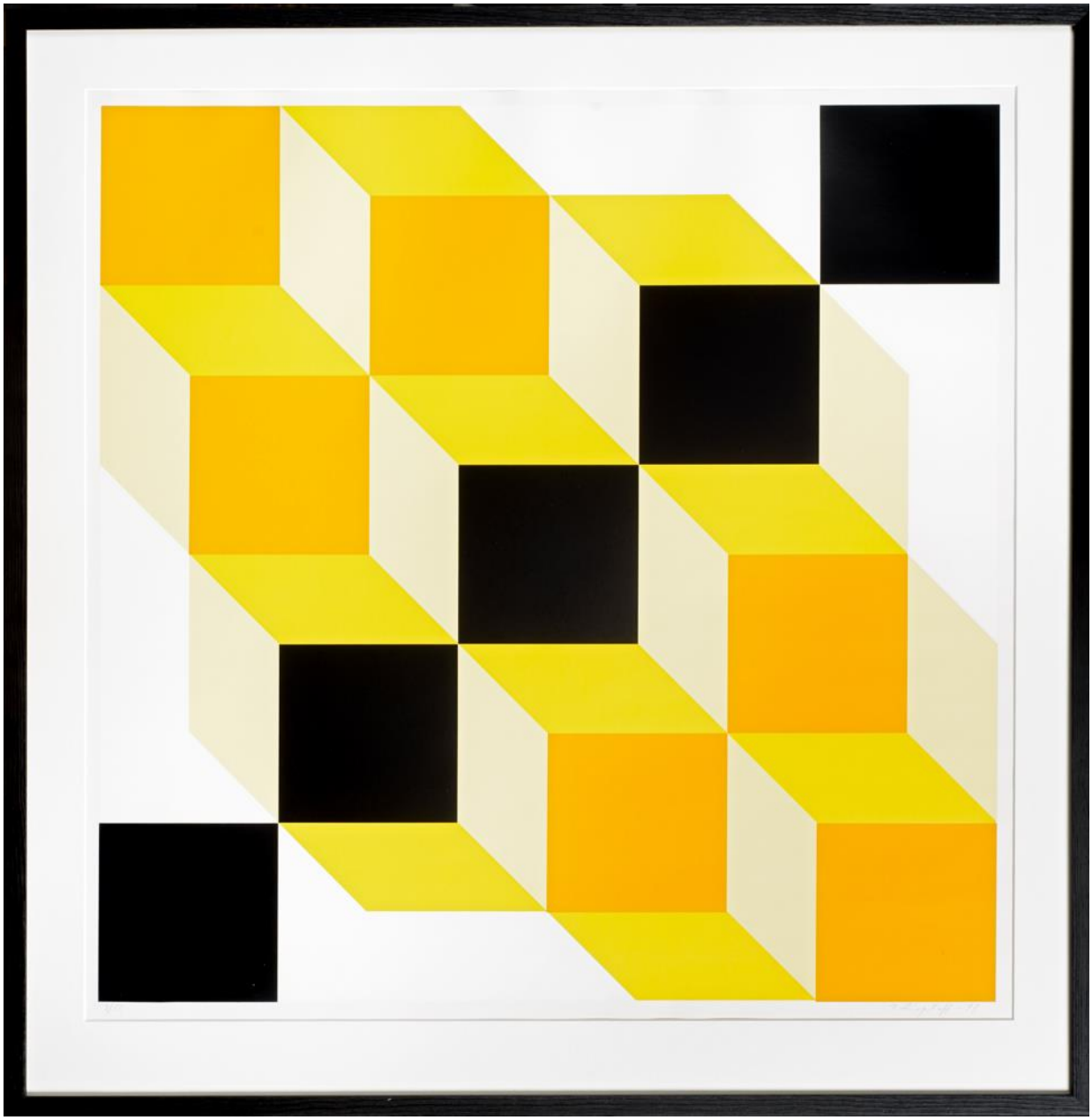

Figure 31. Vladimir Kopteff, *L*, 1977. Screen print on paper, 95 cm x 95 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Figure 32. Vladimir Kopteff, *Serigrafia VI*, 1970. Screen print. 44 cm x 44 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Figure 33. Vladimir Kopteff, *Dimension Budapest*, 1981. Screen print, 28 cm x 34 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

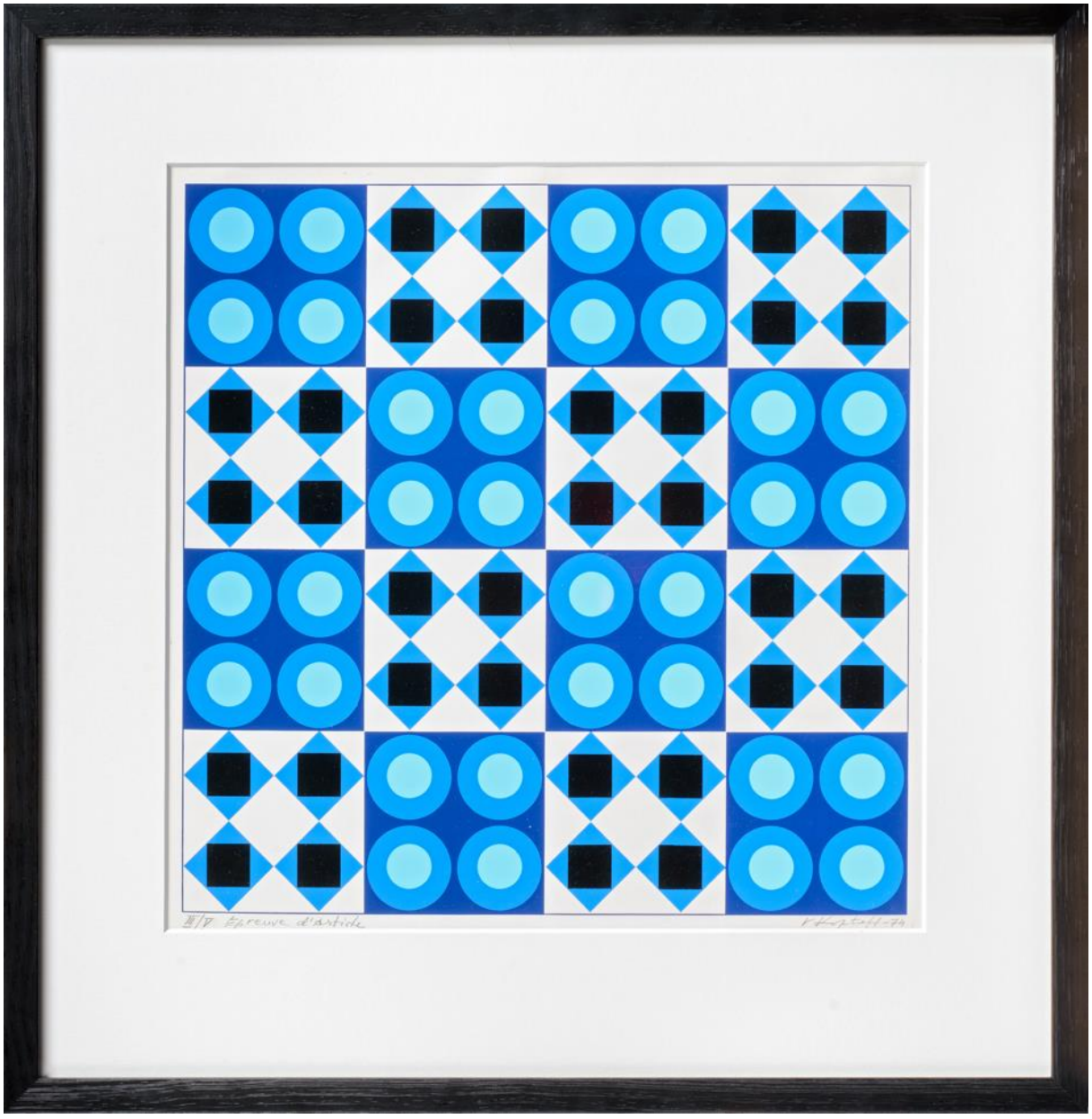

Figure 34. Vladimir Kopteff, *Serigrafia IV*, 1974. Screen print, 42 cm x 42 cm. AKO Kunststiftelse/The Tangen Collection. Photo: Sørlandets Kunstmuseum, 2020.

Appendix 3. Observations of the school groups on guided tours and at the *Abstraction!* exhibition

PRACTICAL INFORMATION

I observed eight groups of sixth and seventh graders (10–12-year-olds) visiting Sørlandets Art Museum over the course of one week (5.10.–9.10.2020). Altogether, 145 students and teachers and one guide participated in this part of the study. The groups had 11–26 children and one to two teachers/teacher assistants. The same guide conducted all the visits. The students, teachers and the guide spoke Norwegian during the visits.

The groups participated in a guided tour at the *Gunnar S. Gundersen – The Groundbreaking Modernist* exhibition (4.9.2020–24.1.2021), had a workshop where they created abstract art and visited parts of the *Abstraction!* exhibition at the Children's Art Museum (the digital installation and the Kopteff installation).

The exhibition at Sørlandets Art Museum's website:

https://www.skmu.no/utstillinger/gunnar-s-gundersen-en-banebrytende-etterkrigsmodernist/

PHOTOS OF THE EXHIBITION

Figure 35. The first room of the exhibition with *Black Sun* (1967) and *Self-portrait* (1942) by Gunnar S. Gundersen. Photo: Alf-Georg Dannevig, 2020.

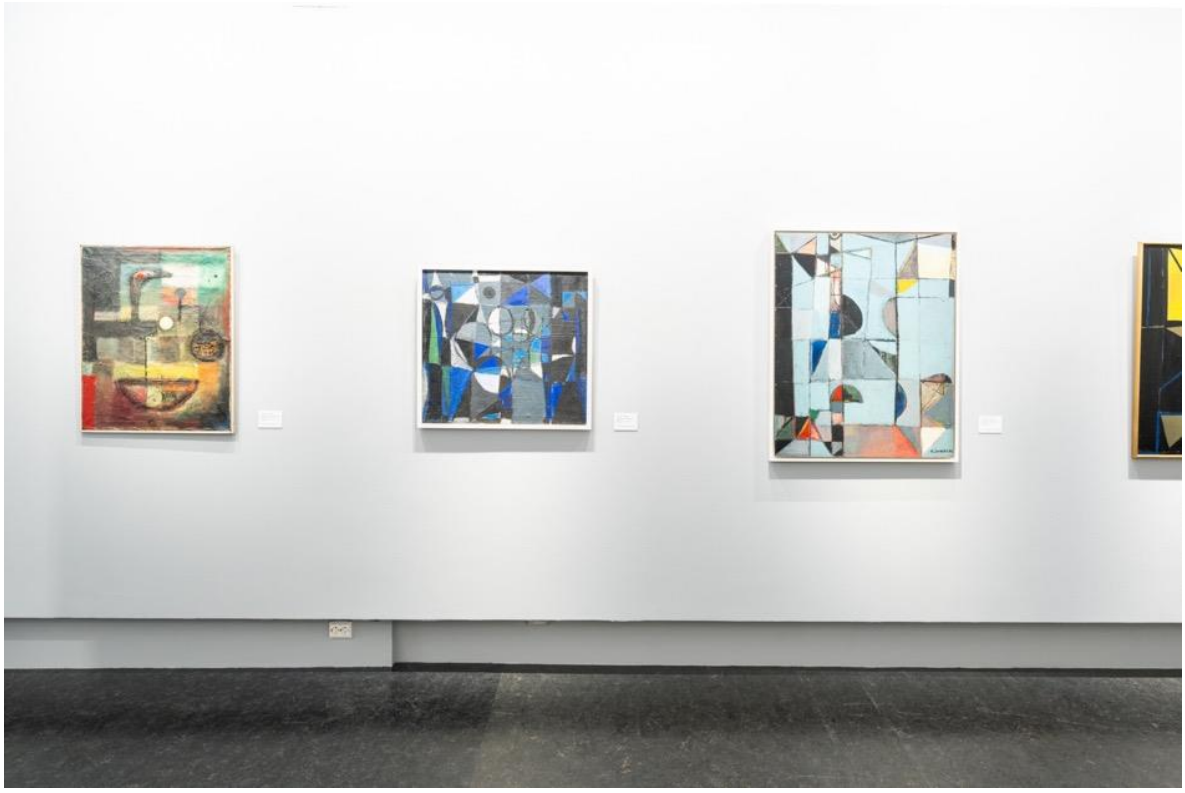

Figure 36. The second room of the exhibition, with *Bird and Snake* (1948) by Gunnar S. Gundersen on the far left. Photo: Alf-Georg Dannevig, 2020.

Figure 37. The third room of the exhibition with *Composition* (1964) by Gunnar S. Gundersen in the middle. Photo: Alf-Georg Dannevig, 2020.

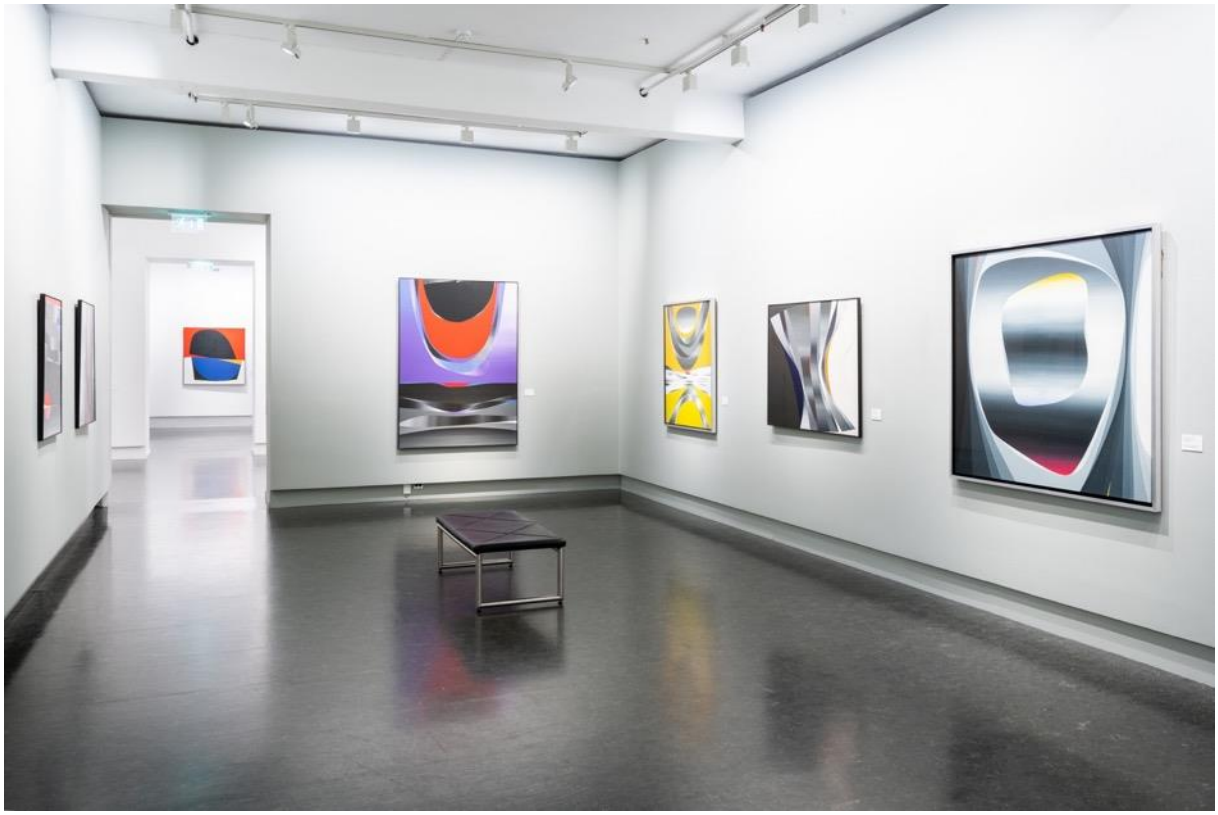

Figure 38. The fifth room of the exhibition, with *Composition* (1967) by Gunnar S. Gundersen on the right side of the doorway. Photo: Alf-Georg Dannevig, 2020.

STRUCTURE OF THE VISITS All the visits followed the same plan with minor changes. The introduction and the guided tour lasted approximately 45 minutes, the workshop approximately 30 minutes, and visiting the digital installation and the Kopteff installation approximately 15 minutes. I was silently observing most of the visit, but sometimes, the children or the guide initiated a conversation with me. The children were encouraged to sit on the floor during the guided tour. I was sitting or standing with the group.
1. The guide welcomes the group at the main entrance.

2. The children and teachers hang their jackets in the wardrobe space next to the Children's Art Museum.
3. The guide asks if the students have visited the museum before. She talks about the rules of the visit with the children and special rules concerning the pandemic. I stand next to the guide.
4. The guide presents me to the teacher and students, or I introduce myself to the group. 'My name is Heidi Kukkonen, and I work as a researcher at the University of Agder. I study museum educational situations with abstract art. What happens when museum visitors encounter abstract art? Could I observe your visit and take notes by hand on paper? It is voluntary to participate, and I do not collect any personal identifiable information, such as names, photos or other recordings'.
5. The group moves to the third floor, next to the entrance of the *Gunnar S. Gundersen – Groundbreaking* modernist exhibition. The guide briefly presents the artist.
6. The group enters the exhibition. The children are encouraged to sit on the floor. The first room has two paintings: *Self-portrait* (1942) and *The Black Sun* (1967). The discussion focuses on the differences between the figurative and nonfigurative paintings and the artist's youth in Western Norway. I stand or sit on the floor.
7. The group moves to the next room with oil paintings from the 1940s and 1950s, and the children are encouraged to sit on the floor (I sit on the floor or stand in the back). The discussion focuses on Gunnar S.' life after the Second World War when he studied at the National College of Art and Design in Oslo. The guide sets the focus on a painting called *Bird and Snake* (1948), and the students get up from the floor to take a closer look at the painting. I get up from the floor and stand next to the group. The children find different bird- and snake-like figures in the image. The guide asks what the children think about abstract art. Is it fun, interesting or annoying?
8. The third room has acrylic paintings from the 1960s. The conversation in the room focuses on the differences between the oil and acrylic paintings. How are they

different? The guide talks about Gunnar S.' travelling in Scandinavia and France, acrylic paint and using tape to create clear forms, colour fields and lines. The children participate by telling what they see in the paintings.
9. The group moves to a room with large paintings from the 1960s and 1970s. The guide talks about the 'iris-technique', where the artist creates a metallic hue by gradually changing colours. Gunnar S. was inspired by technology, machines and outer space.
10. The group moves to the workshop space, which takes place at the Children's Art Museum on the first floor. They create their own abstract art works by cutting and gluing together paper. I sit with the children in the workshop tables, and sometimes, I have conversations with the children and the guide, initiated by me and the participants. I help the guide to give out papers, scissors and glue when needed. This part of the observations is not further discussed in the project.
11. When the children are finished with their artworks, they visit the digital installation and Kopteff installation at the *Abstraction!* exhibition. The class is divided into small groups, consisting of two to six children, depending on the size of the class. One group plays with the Kopteff installation, while another group visits the digital installation in the next room. Others are finishing their artworks and cleaning the workshop space. The groups change places after 5–10 minutes. I observe the small groups by standing next to doorway of the digital installation and in the doorway of the workshop space.
12. The visit ends. I stay with the guide and help her finish the workshop room if needed (and sometimes prepare the room for the next visit). We exchange some thoughts about the visit, and I finish writing my notes.

Appendix 4. The visual ethnography study (Timetable, Structure of the visits, Positioning of the cameras)

TIMETABLE (COLLABORATION WITH A NORWEGIAN PRIMARY SCHOOL)

When?	What happens?
1.8.2020–31.8.2020	I contact the primary school and send an invitation to participate in a research project.
1.9.2020–31.10.2020	I send letters of consent and other info about the project to the teacher. The teacher sends these to parents. The teacher and parents talk about the project with the children.
3.11.2020	A meeting at the school with the teacher, teacher assistant and museum worker. The teacher returns the letters of consent to me. We go through how an action camera works so that the participants know simple functions (play and pause) and how to help the children to put the vests on. We talk about possible problematic situations and privacy concerns and other practical things.
16.11.2020	First group (second grade) visits the exhibition. Participants: 10 children, one teacher, one teacher assistant and one museum worker.
23.11.2020	Second group (first grade) visits the exhibition. Participants: six students, one teacher and one teacher assistant. The museum worker was unable to participate.
24.11.2020	I visit the first group at the school. We talk about the visit and look at photos from the visit. The children finish their workshop task. I take written notes of the situation.
3.12.2020	I visit the second group at the school. We talk about the visit and look at photos from the visit. The children finish their workshop task. I take written notes of the situation.

STRUCTURE OF THE VISITS

The visits happened on Mondays when the museum was closed to prevent nonconsenting persons appearing on the video and contact with others because of

the pandemic. On the same day, an email was sent to the whole staff that filming was going on and that the staff should avoid entering the Children's Art Museum. The entrance to the area was blocked with tape and a sign.
8.30 The group arrives at the museum. The museum worker and I welcome the group. The participants hang their jackets and take off their shoes. The museum worker and I introduce ourselves. We discuss the purpose of the visit, what I research and what it means to 'research' something. I show the stationary cameras. We talk about the rules of the visit and the exhibition. 'The rooms have abstract art, paintings with lots of colours and forms. But I do not want to say too much now because I want you to explore yourselves what abstract can be'.
8.45 The teacher and teacher assistant assist the children (who have consented to wear an action camera) to put on the vests. We begin to film. The children are divided into groups of three or four, and they enter the exhibition space (each group starts from different rooms). The children change the rooms spontaneously and spend 30–45 minutes in the exhibition. The museum worker, the teachers and myself are present in the exhibition the whole time. The adults can participate in the children's activities if they want to.
9.45 After the exhibition, we gather in the workshop space. The children make their own kaleidoscopes by cutting and gluing pieces of cardboard together and by painting with their hands with acrylic paints on paper. The workshop takes around 30–45 minutes.
10.30. We clean the workshop space, play with the kaleidoscopes and stop filming.

POSITIONING OF THE CAMERAS

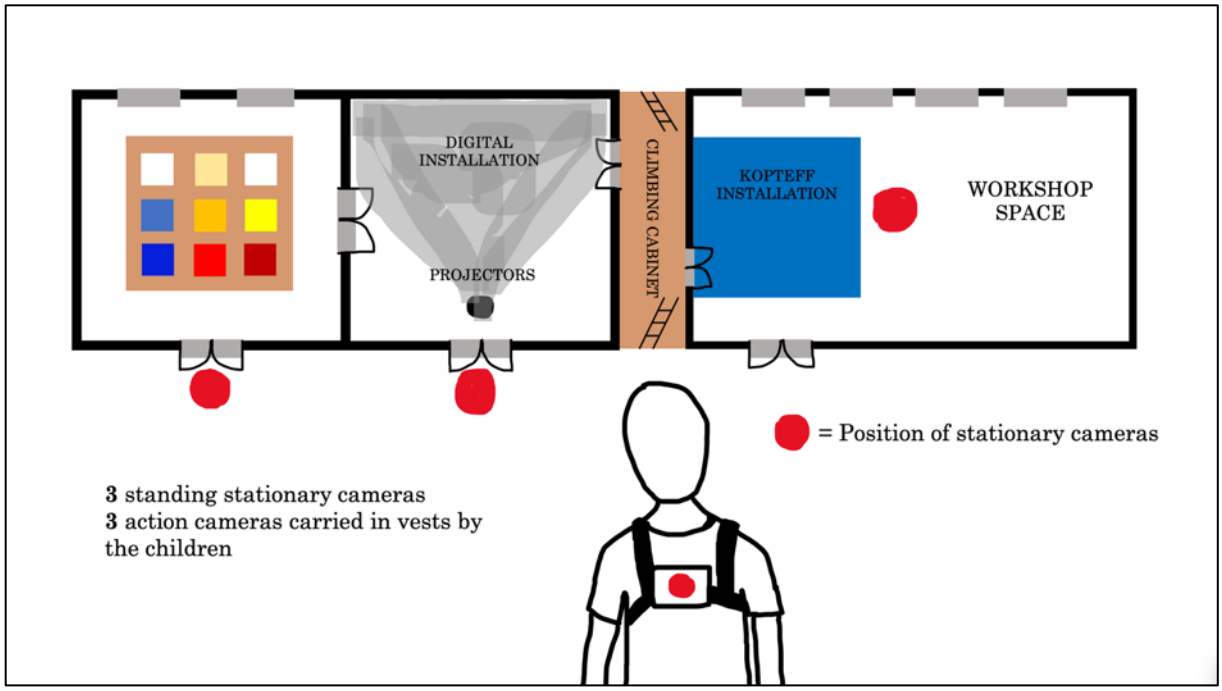

Figure 39. Positioning of the cameras. Diagram: Heidi Kukkonen © Heidi Kukkonen, 2023

Appendix 5. Letter of consent (students and parents)

The following letter of consent, registered at the Norwegian Centre for Research Data, was for the 5–7-year-old children and their parents in the visual ethnography study. The letter was translated into Norwegian before being handed out. Separate letters of consent were made for the teachers in the visual ethnography study and for the artist Irma Salo Jæger. The other letters of consent and translations can be sent afterwards to the commission, if needed.

For students and parents at (school)

Would you like to participate in the research project "Experiencing Abstract Art in Children's Art Museum"?

This is an invitation for the pupils (class) to participate in a research project that has a purpose to study how children experience abstract artworks in a museum exhibition. This text will give you information about the purpose of the project and what is required from you as a participant. The responsible institution for the project is University of Agder in Kristiansand.

About me and my PhD project

My name is Heidi Kukkonen, and I come from Finland. I have a master's degree in art history and museum studies from Finland, and I have worked as a museum guide on the course of five years in my native country. At the moment I am working at University of Agder in Kristiansand as a doctorate student. In my PhD project I study abstract art in museum education: how do visitors experience abstract art in a museum space? Abstract art in my project means paintings and other related artforms that have no identifiable figures, but consist of other elements, such as colors, forms and lines.

The case study in my project studies how children experience abstract artworks in Children's Art Museum, located inside Sørlandets Kunstmuseum in Kristiansand. In collaboration with the museum, I have designed an exhibition for children that displays abstract paintings and encourages children to explore abstraction through playful activities. The exhibition has an experimental approach to museum education: the children can study and explore the artworks freely through play, senses and movement. I wish to study how this approach works by inviting (who) to visit the exhibition (when). I will take video and sound recording together with written notes of the visit in order to analyze the children's experience. The video recording with sound will be done with three Go Pro Cameras carried by the children during the visit and three stationary cameras in the exhibition rooms. Afterwards a reflective assignment, such as an artwork about the visit, will be conducted by the children during class hours.

What is required from the participants?

The duration of the visit and filming will be from one to two hours. Me, the researcher, and the teachers will be present at all times. The exhibition space will be closed for all other visitors and staff during the visit. Only consenting persons will be present during filming. A fun activity of the same theme will be organized at the museum for the children who do not want to participate to the project.

I will gather data of the visit by observation notes, photos, sound- and video recording from the visit. The data is used to develop museum education practices within abstract art in my research project, and to discuss challenges and possibilities when children experience abstract art in a museum space. I ask permission to cite, interpret, analyze and use the data gathered during the visit. The data will be used as empiric material in my doctoral dissertation. When the analysis of the data is done, all data will be anonymized.

How is the data anonymized?

The video is irreversibly anonymized by using iMovie and Photoshop. By using a feature of iMovie called picture in picture, I will place color squares on top of faces and other identifiable elements. The voice recording will be deleted and replaced with subtitles. The video will be then exported and saved, and all other forms of the video will be permanently deleted.

What happens to the gathered information?

All personal information will be handled confidentially. Direct person indicating information such as personal number will not be gathered nor published. Indirect personal information, such as the name of the school will not be published. Photos, sound and video recordings where persons can be identified will be accessible only for me and my supervisors. The data is kept safe in password-secured computer. The project is planned to end 31.8.2022, and all data will be anonymized. The analysis of the data, which contains no personal indicating information, will be used in my doctoral dissertation. No person indicating information will be published in any form. The finished dissertation will be made digitally accessible by the library at the University of Agder. The anonymized data can also be discussed in national and international conferences.

What happens to the anonymized data when the PhD project ends?

I will keep the anonymized data for further publications. The data is valuable, since no similar or comparable material is gathered before in Norway where people experience similar abstract works of art. No person-indicating data will be stored, only anonymized material. The stored anonymized data can be used in further professional publications. The data is stored on a laptop owned by the University of Agder, and the laptop is secured by a password. Only me, the researcher, has access to the material.

Your rights as a participant:

You can do this by contacting me, the data protection officer at the University of Agder, or Norwegian Centre for Research Data.

My contact information:
heidimk@uia.no

Data protection officer at University of Agder:
Ina Danielsen
+47 45254401
personvernombud@uia.no

Norwegian Centre for Research Data: +47 55 58 21 17

It is voluntary to participate

It is voluntary to participate in the study, and you can at any time withdraw your consent to participate without giving a reason for the withdrawal. In case you decide to withdraw, all data of you will be anonymized (all personal-identifying information in videos and photos will be removed). I wish to stress that if you decide to not participate, this will have no consequences or impact on your relationship to the teachers or school.

If you want to know more about the research project or you have any other questions concerning this invitation, do not hesitate to contact me by email: heidimk@uia.no.

If you wish to participate to the study, kindly sign the letter of consent and return it to the teacher before (date).

With kind regards

Heidi Kukkonen
Research fellow in Visual Arts and Art Education
University of Agder

LETTER OF CONSENT

I have received and understood information about the research project "Experiencing Abstract Art in Children's Art Museum".

Please specify below, if you give your consent only to filming or filming AND carrying a GoPro camera.

- ☐ I give my consent to be filmed with sound recording.
- ☐ I give my consent to be filmed with sound recording. I also give my consent to carry a GoPro camera during the visit. The GoPro camera is attached to a vest that can be adjusted according to size.

Date and signature of the participant

Date and signature of the participant's parent

Appendix 6. Receipt from NSD

Assessment of processing of personal data

Print 01.07.2020

Reference number	Assessment type	Date
258716	Standard	01.07.2020

Project title
Experiencing Abstract Art in Children's Art Museum at Sørlandets Kunstmuseum

Data controller (institution responsible for the project)
Universitetet i Agder / Fakultet for kunstfag / Institutt for visuelle og sceniske fag

Project leader
Heidi Marjaana Kukkonen

Project period
01.09.2020 - 31.08.2022

Categories of personal data
General

Legal basis
Consent (General Data Protection Regulation art. 6 nr. 1 a)

The processing of personal data is lawful, so long as it is carried out as stated in the notification form. The legal basis is valid until 31.08.2022.

Notification Form

Comment
Background for sample 1 and 2: The project seeks to study how children and adults experience abstract art in multisensory ways, while visiting an art exhibition at a museum. Three pupils will be asked to wear GoPro cameras during the visit, and stationary cameras will also be used. There will be a parallel, alternative activity for children who have not consented or have chosen to withdraw from participating.

Our assessment is that the processing of personal data in this project will comply with data protection legislation, so long as it is carried out in accordance with what is documented in the Notification Form and attachments, dated 01.07.2020, as well as in correspondence with NSD. Everything is in place for the processing to begin.

NOTIFY CHANGES
If you intend to make changes to the processing of personal data in this project it may be necessary to notify NSD. This is done by updating the information registered in the Notification Form. On our website we explain which changes must be notified. Wait until you receive an answer from us before you carry out the changes.

TYPE OF DATA AND DURATION
The project will be processing general categories of personal data until 31.08.2022.

LEGAL BASIS
The project will gain consent from data subjects to process their personal data. In sample 1, the project will gain consent from parents to process their children's personal data. The children in sample 1 will also consent to participate in the project.

We find that consent will meet the necessary requirements under art. 4 (11) and 7, in that it will be a freely given, specific, informed and unambiguous statement or action, which will be documented and can be withdrawn. The legal basis for processing personal data is therefore consent given by the data subject, cf. the General Data Protection Regulation art. 6.1 a).

DUTY OF CONFIDENTIALITY
The participants in sample 2 are teachers, and teachers are bound by their professional duty of confidentiality. No confidential information must be registered during the project. We recommend that the researcher and the teachers discuss duty of confidentiality before starting the collection of data.

PRINCIPLES RELATING TO PROCESSING PERSONAL DATA
NSD finds that the planned processing of personal data will be in accordance with the principles under the General Data Protection Regulation regarding:

- lawfulness, fairness and transparency (art. 5.1 a), in that data subjects will receive sufficient information about the processing and will give their consent
- purpose limitation (art. 5.1 b), in that personal data will be collected for specified, explicit and legitimate purposes, and will not be processed for new, incompatible purposes
- data minimisation (art. 5.1 c), in that only personal data which are adequate, relevant and necessary for the purpose of the project will be processed
- storage limitation (art. 5.1 e), in that personal data will not be stored for longer than is necessary to fulfil the project's purpose

THE RIGHTS OF DATA SUBJECTS
Data subjects will have the following rights in this project: transparency (art. 12), information (art. 13), access (art. 15), rectification (art. 16), erasure (art. 17), restriction of processing (art. 18), notification (art. 19), data portability (art. 20). These rights apply so long as the data subject can be identified in the collected data.

NSD finds that the information that will be given to data subjects about the processing of their personal data will meet the legal requirements for form and content, cf. art. 12.1 and art. 13.

We remind you that if a data subject contacts you about their rights, the data controller has a duty to reply within a month.

FOLLOW YOUR INSTITUTION'S GUIDELINES
NSD presupposes that the project will meet the requirements of accuracy (art. 5.1 d), integrity and confidentiality (art. 5.1 f) and security (art. 32) when processing personal data.

To ensure that these requirements are met you must follow your institution's internal guidelines and/or consult with your institution (i.e. the institution responsible for the project).

FOLLOW-UP OF THE PROJECT
NSD will follow up the progress of the project at the planned end date in order to determine whether the processing of personal data has been concluded.

Good luck with the project!

KAPITTEL 14

Abstraction in Action: Post-Qualitative Inquiry as an Approach to Curating

Heidi Marjaana Kukkonen
Universitetet i Agder

Abstract: In this self-study, I describe the process of curating an exhibition about abstract art for children. The field of museum education lacks studies about experiences with and approaches to abstract art. In order to find new ways to approach abstract art outside of the traditional dialogue-based methods and to imagine how a child might want to experience abstract art, I began to conduct a post-qualitative inquiry with an emphasis on ontology and epistemology. I used the concept of abstraction as a creative force and a method, and the post-qualitative inquiry became a lived inquiry. My experiments were influenced by post-structuralist theory. I moved from the critical tradition towards experiential museum education in my curatorial decisions. The process made the educational potential of abstract art visible: abstraction is a safe opportunity to explore feelings of uncertainty and discomfort, and a strategy to deconstruct stiff patterns in order to get creative.

Keywords: abstract art, abstraction, post-qualitative inquiry, curating, museum education

Introduction

What is abstract art good for? What's the use of paintings that do not seem to show anything except themselves? These questions were asked by Kirk Varnedoe, art historian and former chief curator of painting and sculpture of the Museum of Modern Art, during his lectures *Pictures of Nothing – Abstract Art since Pollock*. He says that the topic is "one of the

Sitering: Kukkonen, H. M. (2022). Abstraction in Action: Post-Qualitative Inquiry as an Approach to Curating. I L. Skregelid & K. N. Knudsen (Red.), *Kunstens betydning? Utvidede perspektiver på kunst og barn & unge* (Kap. 14, s. 319–342). Cappelen Damm Akademisk. https://doi.org/10.23865/noasp.163.ch14

most legitimate but poorly addressed questions in modern art" (2003, pp. 23–25). Similar questions intrigue me as a museum educator. In recent decades, only a handful of studies have been made about museum educational practices with abstract art, and these studies focus on traditional dialogue-based methods.[1] The field of museum education lacks actual studies about experiences and approaches with abstract art. In this self-study I will reflect on the educational potential of abstraction.

When I worked as a museum guide in my native country, Finland, I used traditional dialogue-based methods with abstract art.[2] I tried to decode the meaning of the artworks, and I focused on factual art historical information on my guided tours. Despite my lengthy explanations, I received frustrated comments from the visitors that the art form was difficult to understand. It was challenging for me as well to talk about abstract art. Ignoring senses and going straight into analysis can be linked to a critical tradition in museum education, where an idea instead of the body and its senses is the starting point for the experience. Museum education in Scandinavia and elsewhere in Europe leans strongly towards the critical tradition (Christensen-Scheel, 2019, p. 29). It is based on critical philosophy and art's aesthetic autonomy, stemming from the writings of Immanuel Kant (1790/2007) and Theodor Adorno (1970/2013).

I study museum educational practices with abstract art in my PhD project. What happens when we encounter abstract art? Can we find new ways to mediate abstract modernist art? During the first year of my PhD project, I was invited to curate an exhibition about abstract art for

1 Palmyre Pierroux (2005) writes how high school students master concepts in aesthetics and modern art in art history classes and in art museums, using abstract modern art as an example. Olga Hubard (2011) studies interpretative inquiry when discussing "open" artworks with students. Both Pierroux and Hubard study encounters with abstract art as complex meaning-making processes by using dialogue-based museum education, such as a guided tour or a discussion with students in a gallery space or a classroom. Two studies published in the *Tate Papers* series (Dima, 2016; Scott & Meijer, 2009) focus on visitors' engagement with learning tools in exhibitions with abstract art, but the studies pay little attention to the art form, and most tools in the studies are based on text.

2 Dialogue-based practices can be understood as a variety of participatory and multisensory practices (Dysthe et al., 2012, p. 6). When I write about my traditional dialogue-based practices as a guide, I mean a traditional guided tour that focuses on art historical and biographical information, takes distance to subjective sensing and emphasizes art's critical potential (see for example Christensen-Scheel, 2019, p. 30).

Barnas Kunstsmuseum [Children's Art Museum], a section dedicated for children inside Sørlandets Kunstmuseum [Southern Norway Museum of Art], a regional museum in Kristiansand, Norway. The exhibition would create an important empirical part in my PhD project. I started to plan and make ideas, but I was still somewhat stuck in the critical tradition of museum education. In order to find new ways to approach the art form, and to reflect how children would like to experience abstract art, I began to conduct a post-qualitative inquiry with abstract art. According to Elizabeth St. Pierre (2019a), post-qualitative inquiry does not use already-there methods and methodologies but encourages to experiment instead in order to see outside of the old patterns. The focus is on the unknown and what is yet to become instead of repetition or representation of what is already known. (p. 1).

In my experiments I noticed how abstraction escapes from words and definitions, touching our senses instead. When a painting catches my attention with bright colors, I might get chills on my arm, but I cannot explain the sensation by words. I may associate it with a feeling or a place, but I cannot exactly say why. The post-qualitative inquiry then led me closer towards experiential museum educational practices, which were used in the exhibition design. Experiential museum education emphasizes the museum visitor's experience when encountering art: the visitors have the opportunity to physically participate in activities and multisensory encounters (Christensen-Scheel, 2019, p. 25). Experiential museum education is based on phenomenological and pragmatic traditions in philosophy (Dewey, 1980; Merleau-Ponty, 1945/2013).

Abstraction! opened in September 2020. The exhibition displays post-war abstract art from the Tangen Collection.[3] Paintings and prints are displayed together with activities and digital solutions in three rooms.[4] In this self-study, I will describe how my post-qualitative inquiry with abstraction became the groundwork for curating an exhibition about abstract art for children. My inquiry can be located most importantly

3 About the Tangen Collection, see Sørlandets Kunstmuseum [Southern Norway Museum of Art], 2021.

4 The museum applied and received funding for the exhibition from AKO Foundation.

in the field of museum education, but it is influenced and inspired by art history.[5]

I will begin by depicting the conflict between me and abstract art in the first section. In the next sections, I will describe my post-qualitative inquiry, the playful experiments and encounters with abstraction. I started to make abstract art and to pay attention to abstraction in everyday life. In addition, I started to provoke abstraction in relational situations and to contemplate ontological questions. In each of these sections, I will explain how the post-qualitative inquiry has contributed to the curatorial strategy by giving concrete examples from the exhibition design. The whole process made the educational potential of abstract art visible for me, which I will discuss in the final sections. In addition to St. Pierre's article «Post-Qualitative Inquiry in an Ontology of Immanence» (2019a), I will use poststructuralist theoretical texts that have influenced my explorations with abstraction: *Positions* (1972/1981) and *Aporias* (1993) from Jacques Derrida and *A Thousand Plateaus – Capitalism and Schizophrenia* (1980/2004) from Deleuze and Guattari. In the subchapter "What is abstraction? Ontological contemplations" I will explain how I moved from Derrida's deconstruction towards Deleuze and Guattari's ontology of immanence in my explorations with abstraction. I will do this with the help of two concepts: *aporia* from Derrida (1972/1981) and the *rhizome* from Deleuze and Guattari (1980/2004).

Towards post-qualitative inquiry

The Children's Art Museum is a section dedicated for children inside Southern Norway Museum of Art. The museum space, consisting of three large rooms, has permanent wooden installations, inspired by cabinets of curiosities from the Renaissance. The cabinets and boxes have space to exhibit artworks, and the installations invite children to explore

5 The art historical terminology of abstract art is confusing, as pointed out by Varnedoe (2003, p. 47). Should one talk about abstract, non-figurative, non-representational or non-objective art? I use the concept of abstraction, since it is the most accessible term both for professionals and museum visitors. However, I do use the other concepts as well when it is necessary to help the reader or to emphasize the complexity of the concept.

and roam around the art inside and outside of the cabinets. When the Children's Art Museum opened in 2014, its goal was to create a space where children can experience art in their own premises, through play and using their senses (Liven, 2015). In 2019, I was invited by the museum to curate an exhibition about abstract art for children, which would create an important empirical part of my PhD project.

Around these times, I was still in conflict with abstract art. In fact, I had chosen the topic for my dissertation because of my problematic relationship with the art form. The conflict started when I worked as a museum guide in my native country, Finland. I considered language and dialogue-based methods my most important tools. My main goal was to make the artworks accessible and meaningful for visitors, and my favorite part was the moment of resolution, when the trick of the artwork would become apparent. I believed that the museum visit would be successful for the visitors when I was well-enough prepared; had answers and explanations for all the artworks, and my conversations were flowing with the visitors. I tried to see *behind* the artworks by decoding them, and I highlighted factual information.

However, this kind of easy catharsis was difficult to initiate when I talked about abstract art: non-figurative modernist painting does not have a similar visual narrative like its predecessors before the 20th century. Even if I had done my homework, my much-rehearsed guidance in front of abstract art felt misplaced and uncomfortable. There was a void between me and abstract art, a feeling that my own words were empty or about to be exposed. It was often easier with children, who seemed to be more playful and open towards abstract art. A common trick is to ask the children to point out all the almost-there figures in the painting. The artwork then turns into a fun game of decoding hidden meanings (*that swirl of paint looks like a face!*). This trick works like a charm, but does it not make the abstraction *concrete,* the non-figurative into figurative? What about the abstraction itself?

I had long tried to find perfect definitions from art historical texts of what abstraction as a concept and as an art form might be. However, early on I realized that the meaning of abstract art cannot be explained thoroughly with words, nor can abstraction be defined with simple sentences.

Abstract art seems to work beyond words and language. When a painting catches my attention with bright colors, I can feel it in my gut, but I cannot always explain it by words. I might get chills and goosebumps or intuitively move around the painting. I may associate it with a feeling or a place, but I cannot exactly say why.[6] I came to realize that text-oriented research methodology would only get me so far when exploring abstraction. It was pointless to try to read abstract art like a textbook, when it has unique qualities that cannot be always explained by words. I had to turn towards bodies, senses and action, things I had neglected when working with traditional dialogue-based methods. In order to kick-start the project and get a real insight of abstraction, I needed to participate myself instead of observing and analyzing abstraction from distance. I began to conduct, so to say, a blind search in my doctorate project. Instead of testing a hypothesis, I started to explore abstraction without any pre-desired results.

These experiments and explorations became my post-qualitative inquiry. Post-qualitative inquiry was introduced by Elizabeth A. St. Pierre in 2011 in order to challenge the traditional qualitative research (St. Pierre, 2011). According to St. Pierre, qualitative research has become too formalized and method-driven, which is ironic, since it was originally invented in the 1980s as an interpretive social science to challenge the methods-driven approach of positivist social science. Unlike traditional qualitative inquiry, post-qualitative inquiry focuses more on ontology and epistemology than methodology (St. Pierre, 2019b). In my experiments, I kept the ontological and epistemological questions in my mind. What is abstraction, and how can we experience it? How can I bring out the educational potential of abstract art in an exhibition for children?

Concrete encounters with abstract art

Post-qualitative inquiry starts with "a concrete encounter with the real" (St. Pierre, 2019a, p. 12). My experiments with abstract art started by going

6 Practicing artist and professor of painting Tarja Pitkänen-Walter also describes experiences concerning language and senses with abstract art in her doctoral dissertation (2006), but from the point of view of the artist.

to the museum and spending time with abstract paintings instead of reading and writing about them at home.[7] In the following sections, I will first describe my own experiments with abstraction, and then explain how these have influenced the curatorial strategy at the Children's Art Museum.

In the past, I have been a fast museum visitor. I go and see, but I wish to reflect at home in my head. This time I decided to stay and literally spend time with the concrete artworks. I stood in front of them, I sat on the floor and I moved around the room. I made myself linger on even when I wanted to move. However, *being* with abstraction appeared to be difficult to conduct; abstraction seemed to urge action. Sometimes the abstract paintings made me want to step further away or closer, literally moving and guiding me. The associations in my mind and the restlessness in my body would move me as well. The obsession to make sense made me question all the time what I was doing and why. At the same time, I tried to resist making sense as much as I could: I was afraid that converting abstraction into explanations might dissolve it altogether. Here I had realized that abstract art might show our obsession (or desire) to constantly reason, categorize, identify, and make sense. We seem to meet this desire when we look at abstract art, immediately asking what it is or what it means. This idea came when I read Gert Biesta's article "What if? Art Education Beyond Expression and Creativity" (2018). He writes how art has the ability to give form to our desires. When we engage in a dialogue with resistance, our desires can also rearrange and transform (Biesta, 2018, p. 18).

Sometimes I laid down on the floor, watching how the colors of the paintings changed when the lights refracted the layers of paint. During my experiments in the museum space, I could sometimes see other visitors behaving as strange as me, and it was often one particular visitor group. Children might sit and lie on the floor and test the limits of the white cube. This I had experienced at my job as a museum guide, as well. Children might be interested in peculiar details, move spontaneously

7 These experiments with abstract art were made at Southern Norway Museum of Art during the fall and winter 2019/2020. Two exhibitions with abstract, modernist art were especially significant: *11 nordiske. Kunstnere fra Tangen-samlingen* [*11 Nordics. Artists from the Tangen Collection*] (22.6.-22.11.2019), and *Before the Horizon – AKO Curatorial Award* (7.12.2019–1.3.2020). In addition, other exhibitions were visited in Norway, Finland and the Netherlands.

around the exhibition space, and ask difficult and random questions that do not always seem to make sense.

It was important for me that the exhibition I was curating would allow all that, to let children explore art in their own ways. In order to facilitate concrete encounters with abstract art, I wanted to include real artworks in the exhibition space for children, even if they needed to be secured by acrylic glass. The museum was concerned for the safety of the artworks, but eventually decided to include some of the artworks to the exhibition. I chose different types of post-war abstraction from the Tangen collection: more spontaneous and intuitive expression from painter Irma Salo Jæger (b. 1928), paintings containing optical illusions from Outi Ikkala (1935–2011), and serigraph prints with mathematical rules from Vladimir Kopteff (1932–2007). In addition to my post-qualitative inquiry, two interviews and a literature review were conducted in order to anchor the exhibition to art historical knowledge.

Making unexpected art

In order to approach abstraction in different ways, I started to create abstract art at home (figure 1). Here I am not just thinking of art such as paintings with a non-figurative form of expression, but a process with abstract character. Instead of producing something according to an imagined vision, I focused on a multisensory and spontaneous process instead, using my body and my senses. I played with elements of uncertainty and surprise, something yet unknown. I formed a mass of blue magic dough out of salt, flour, oil, water and acrylic paint. I then intuitively played with it, until I let someone else to decide what it should become. The end product was destruction: When the dough dried, it lost its beautiful color and started to resemble a moldy porridge.

I have previously done my "field work" by planning ahead and by "stepping outside of the bubble" of reading and writing. In post-qualitative inquiry, however, one does not have to be in a particular site to do empirical field work (St. Pierre, 2019a, p. 10). I started to pay attention to surprising situations in everyday life that made me feel abstraction, turning the experiments into a living inquiry (figure 2). The abstract situations

Figure 1. Making abstract art at home. Photo: Heidi Kukkonen. License: CC BY-NC-ND.

Figure 2. Broken (discursive?) patterns. Photo: Heidi Kukkonen. License: CC BY-NC-ND.

hold the same characteristics as one might use to describe the process of creating an abstract action painting: situations where a loss of control is inevitable, where routines, patterns, plans and rules might not take place, and where the result or meaning is yet unknown and unpredictable. I got lost in a new place or in a conversation (figure 3), I paid attention to confusing details (figure 4), and I found myself in situations that made no sense.

Here I gave up some of the control and power I had been holding tight to my chest when working with more traditional methods as an educator. At the Children's Art Museum, I would trust the children instead, who might know better how to abstract. Adults know the systems of validating knowledge over senses and *making sense* all too well. I had, as well, taken abstract art a bit too seriously as a museum guide. Exploring the world with senses and going off-road here and there might be easier for children than for many adults. In my experiments, I tried to adopt the playful way of encountering abstract art. Some of my experiments, starting from the blue magic dough, can be described as childish. It was my

Figure 3. I got lost on a hike. Photo: Heidi Kukkonen. License: CC BY-NC-ND.

Figure 4. I paid attention to surprising and confusing details in my surroundings. Photo: Heidi Kukkonen. License: CC BY-NC-ND.

way of reflecting how a child might experience art, even if I could not actually know how it is to be a child today.

I wanted to include the art making with surprises and unexpectedness to the actual exhibition space at the Children's Art Museum. I did not want to create activities that give children a quick satisfaction or an easy solution, where one pushes a button and things click (since abstract art rarely works like that). I also wanted to avoid *making sense* of abstraction by rationalizing it. Together with the museum, we came up with open activities where children (and adults) can fill up the blank spaces with their own imagination, movement and play, and where uncertainty can become curiosity. The activities do not have right or wrong answers but invite to exploration instead. In the first room of the exhibition, the visitors are encouraged to create their own abstract compositions by experimenting with lights, colors and forms in the exhibition space (figure 5). One of the in-built boxes contains a camera, and the spontaneous artwork appears on two screens under the wooden cabinet (figure 5). Here,

the digital element adds movement and unexpectedness to the art making, since the visitor cannot create and see the result at the same time. It also encourages for collaboration: some can perform, and others can watch and guide the art making.

Figure 5. *Abstraction!* at Children's Art Museum. On the wall: *Breakthrough* (1965) and *The Wellspring Appears* (1961) by Irma Salo Jæger. The visitors receive a bag to make their own abstract compositions. One of the boxes on the wooden installation contains a camera, and the action is streamed to two TV screens below the wooden installation. Photo: Heidi Kukkonen. License: CC BY-NC-ND.

I assume that my frustration with abstract art on my guided tours resulted from straightening all the bends of abstraction and making it flat and boring by hanging tight on factual and biographical information in order to cope with the uncertainty of abstraction. This time, with the exhibition at the Children's Art Museum, I wanted to emphasize the paradoxes in abstract art. Instead of shying away from the complexity of abstraction, the wall texts encourage the visitors to experiment and play with the paradoxes instead. Children are often very talented in asking difficult and "impossible" philosophical questions in random moments themselves, and I wanted to capture the curious, playful, and exploring attitude to the texts.

In order to encourage the visitors to play with rules and patterns at the Chidlren's Art Museum, a large replica of Vladimir Kopteff's (1932–2007) artwork was installed on the floor of the workshop space (figure 6). The image has circles, triangles and squares in different colors in a geometrical

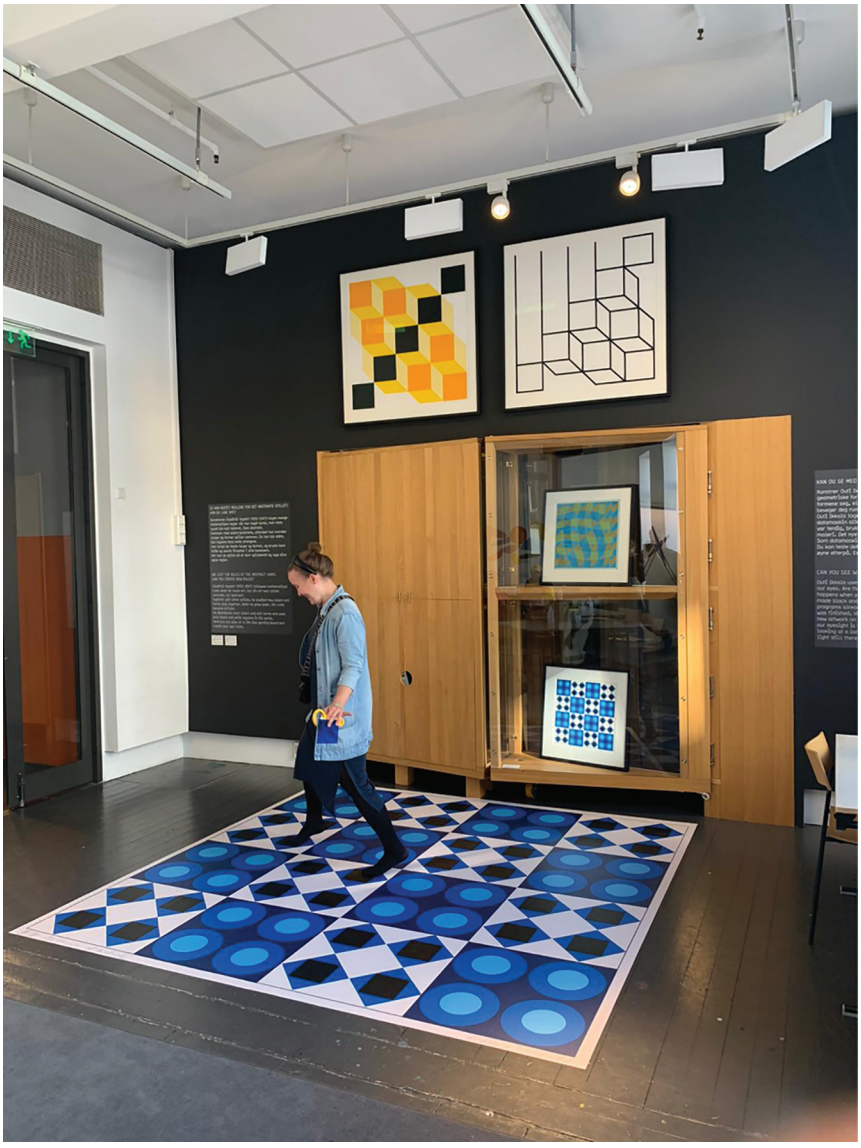

Figure 6. I dance with Kopteff's patterns on the carpet. On the wall: *L* (1977) and *M* (1977) from Valdimir Kopteff. In the cabinet: a gouache painting (title lost) (1976) from Outi Ikkala and *Serigrafia* IV (1974) from Kopteff. Photo: Heidi Kukkonen. License: CC BY-NC-ND.

pattern. The replica works like a game of Twister, inviting children to come up with their own rules and play on the life-size gameboard. The wall text tells how Kopteff was investigating mathematical rules in art, and how colors and forms play together. The original artwork is displayed next to the replica.

Provoking abstraction in relational situations

When I got more familiar with my experiments, I sharpened my post-qualitative inquiry. I started to intentionally put myself in uncomfortable situations, provoking abstraction with curiosity (figure 7). I attended meetings without preparing a speech of my plans and intentions. I aired out my ideas before they were finished or polished, and gave presentations in front of others without a perfected plan. Instead of working alone, I reached out to others in order to add relational elements and action into the situation. This would mean a short coffee break with a colleague or a friend, or a longer workshop where I wanted to talk about a certain

Figure 7. I started to provoke and play with abstraction. Photo: Heidi Kukkonen. License: CC BY-NC-ND.

question or a theme. That way I was able to add more action and unexpectedness into my ways of working. The more people attend a conversation, the more abstract the situation might eventually become.

Crowded and noisy places seemed to yell abstraction. I noticed that some of the chaotic and uncertain situations manifested themselves in my body as a raised pulse and sweaty hands. The anxiety itself can be seen as abstraction, like a grey cloud of something that might be difficult to name, hovering around, becoming concrete in bodily sensations.

In the exhibition, relational abstraction is created in a user-generated digital installation (figure 8).[8] The installation mediates Norwegian modernist painter Gunnar S. Gundersen's (1921–1983) philosophy of movement, rhythm, and vibration in his paintings, and the visualities

Figure 8. The digital installation. I point at the orange circle that depicts my movement in the room. Photo: Heidi Kukkonen. License: CC BY-NC-ND.

8 The digital installation is created by Serbian artist Mirko Lazović in collaboration with the museum, following the curatorial plans. The installation relates to the *Gunnar S. Gundersen – Groundbreaking Modernist* exhibition on the third floor of the museum.

are inspired by his art. When a visitor enters the room, a kinetic sensor recognizes the body of the visitor, and a circle appears on the wall. When the visitor moves in the space, the circle draws a trace in the image. The visitors can therefore "paint" by moving their bodies. The image is always created in relation to others, even if the visitor is alone in the room, since the background depicts the previous visitors' movements. In addition, some elements have randomness and twists programmed into them. They follow, poke and interrupt the visitor's circle. Many visitors can create traces at the same time, and the abstraction transforms and grows as long as there are visitors in the room.

What is abstraction? Ontological contemplations

Post-qualitative inquiry uses ontology of immanence in poststructuralist theories (St. Pierre, 2019a, p. 4). One of the questions, when starting my exploration, was *what abstraction is.* This led me towards ontological contemplations about the existence of abstraction. When I realized that abstraction was difficult to explain with words, I begun to think abstraction as an impossible and unexplainable concept. When defined with words, it stops being abstract. Similarly, as explained by Liam Gillick (2013), abstract art is fundamentally impossible, since the abstraction is always *concretized* in the process of making art. Here I was closely tight with Jacques Derrida's *aporias*, a concept I had previously used as a part of a concept analysis in my master's thesis (Kukkonen, 2017).

In *Positions* (1971/1981), Jacques Derrida explains how deconstruction in his writings attempts to deconstruct the binary opposites in classical philosophy. He writes how deconstruction strives to overturn the violent hierarchy of the binaries by systematic intervention (1971/1981, p. 41). These binaries for Derrida are, for example, speech over writing, subject over object, and intelligence over senses. However, this process also produces concepts that cannot fit into the binary oppositions: aporias that resist and disorganize the structure. The undecidable concepts can never be resolved or dissolved into a third term, even though they are simultaneously neither/nor and either/or (Derrida, 1971/1981, p. 43). The concepts have a paradoxical structure: as later described in *Aporias*, the condition

of these concepts' possibility is their impossibility (Derrida, 1993, p. 15). For example, Derrida has analyzed death and hospitality as aporias.

Aporia is a fundamental concept in Derrida's writings. In *Aporias* (1993), he describes how the paradoxical structure of aporia has been in his interest in number of different contexts (Derrida, 1993, pp. 12–13). The concept of aporia is determined from the double concept of the border (Derrida, 1993, p. 18). Binary structures function between borders, such as things, objects, territories, countries, cultures, and languages. The binaries also function on a conceptual level. They are determined by oppositions and what they are not. Aporias, however, are found in between a border, where a plural logic takes place. The border is double, uncrossable or impossible to catch. The two contradictory opposites in aporia are haunting each other (Derrida, 1993, pp. 17–18.)

When it comes to abstraction as an aporia, I imagine it moving and undecidable like a hologram. I see it flashing its two sides, flipping between the opposites of impossible and the absolute, abstract and concrete. The abstraction seems to become concrete in one moment and disappear into thin air in the next, as moving, changing and undecidable concept. In my exploration with abstraction, however, I wanted to go further than being "stuck" between two possibilities: as Derrida says in *Positions*, he still remains and operates within the deconstructed system (1972/1981, p. 42). I wanted to move beyond Derrida's linguistic model and get my whole *body* involved in *action* and *situations*. I wanted to have more chaos and ways to depart. Instead of a hologram, I was looking for a metamorphosis.

During the first year of my fellowship, I read much about Deleuze and Guattari's ontology of immanence, which has then influenced my explorations. The ontology of immanence is introduced in *A Thousand Plateaus* (1980/2004), through the rhizome: an organism-like structure that is changing, variating and metamorphosing (figure 9–10). The rhizome has no center or hierarchy, nor does it have a beginning or an end. Everything in the world is connected and entangled to each other, sometimes meeting a dead-end but growing further elsewhere. Deleuze and Guattari write how the world is much more complicated than a steady structure, where opposites and dichotomies are found (1980/2004, pp. 3–28). The world is full of action; changing and moving, instead of passively standing still for me to observe.

Figure 9. Rhizome. What does an actual rhizome; a root of a plant look like? I created a concrete experiment with the concept by scanning a tomato plant. Photo: Heidi Kukkonen. License: CC BY-NC-ND.

Figure 10. Rhizome. Photo: Heidi Kukkonen. CC BY NC ND.

The educational potential of abstract art

In my experiments, I started to reinvent the concept of abstraction for myself. Like St. Pierre writes, philosophical concepts do not represent reality, but reorient thought (2019a, p. 14). A philosophical concept is a creative force (St. Pierre, 2019a, p. 7). Abstraction became action and an opening into something yet unknown. I started to pay attention to it and provoke it in relational situations. I realized that abstraction is in constant becoming, always changing into something else, refusing to be defined. In the exhibition design, abstraction is similarly used as an opening: The exhibition itself does not give a straight answer what abstraction is, but it serves as a laboratory space to test and experiment through action.

The relational perspective was much underrated in my previous text-oriented approach. In my experiments, I came to realize that abstraction operates in bodies and senses, not only in my own, but also in the very material body of a painting. With an abstract painting, the swirls, colors, lines, and details guide me, sometimes boring me. The time seems to slow down, and I intuitively turn and walk away. Sometimes the details

catch my attention in so much that the time speeds up and I lost track of it. In a chaotic situation, bodies function in abstract and uncontrollable ways, both creating and reacting to abstraction. My voice is shaking, my hands get sweaty, and I might literally lose my words. The reactions are intuitive, uncontrollable and cannot be reproduced. The interplay is not like a dialogue from A to B between me and a painting, but a rhizomatic *situation* of becoming matter.

My understanding of abstraction and museum education went through an *experiential turn*. The term is suggested by Dorothea von Hantelmann in her widely cited text "The Experiential Turn" (2014). She argues that the experience of the spectator has become an integral part of the artwork's conception from the 1960s onwards. Artwork is no longer understood as an object bearing meaning, but as a situation experienced by the spectator (von Hantelmann, 2014). Many institutions in Scandinavia have undertaken serious measures to develop their educational practices towards more experimental educational settings in recent decades (Illeris, 2015, p. 228). The public is invited to participate, and the educator no longer fills the empty heads of the visitors with (art historical) knowledge.

I admit that the traditional methods, where I speak as a guide according to a plan and the museum visitors listen, are often much easier to conduct. Every museum guide has been through the awkward silence when participation is encouraged, but there is no natural flow in the situation. Experiential museum education requires openness, actual enthusiasm and patience to bear the messy moments, both from the educator and the visitors.

In order to avoid a situation where the visitors would just move on confused and exit the space, they are helped to get started. Christensen-Scheel (2019) writes how experiential museum education is often combined with the critical tradition in today's museums (p. 45). This was done at the Children's Art Museum as well. Even if the activities are designed to function without further instructions, help can we found if needed. The wall texts and the activities are all anchored in art history, while simultaneously encouraging the visitors to test the ideas out. This requires that the adults read the texts aloud for the children who cannot yet read. The

texts give art historical context for the activities and challenge the adults to contemplate the paradoxes of abstract art as well.

Abstraction is not only the object of my study, but it has become a part of my methodology, too. Abstraction became an important curatorial and educational strategy that forced me to see and act outside of the patterns I had learned too well. In creative and experimental ways, I had to put myself in situations which I could not plan beforehand in order to experience abstraction. I learned to give up some of the power of planning ahead and being in control as an educator. This is paradoxical, since I did this voluntarily and willingly. Therefore, I was implicitly the one setting premises for the situations. I consider this paradox to be much linked to the non-methodology of post-qualitative inquiry: my method was to not apply a method, by planning not to plan.[9] Post-qualitative inquiry itself has an abstract nature: playing with uncertainty and the unknown, without plans and methods.

However, I might not be able to find abstraction same way in the future. On the account of ontology of immanence, post-qualitative inquiry has a disappearing and transforming nature. My sweaty hands dry and my voice stops shaking; abstraction seems to disappear when it becomes familiar or static. After holding presentations without a specific plan multiple times and putting myself intentionally in uncertain situations, I have gotten more used to the spontaneity; I have gotten comfortable with being uncomfortable. Here, the educational potential of abstraction becomes visible. By playing with abstraction, I managed to shake my stiff patterns and I got creative again as a curator, museum educator and researcher. Most importantly, I became more tolerant and even curious towards uncertainty and discomfort.

Conclusions

My post-qualitative inquiry made me pay attention to the transformability of the concept of abstraction. The meaning of abstraction cannot

9 The paradox of method without a method reminds me of Derrida's aporias, a concept I have discussed earlier in this paper.

always be articulated or mediated by words and language. Abstraction operates in bodies and senses like an immediate multisensory experience in front of an abstract painting. It urges in action and movement, and it builds up in relational situations. In my experiments, the philosophical concept of abstraction became a method; an opening to the void between me and abstract art. As a former firm believer in foolproof plans and safe choices, I met uncomfortable and chaotic situations where I had to become an active and spontaneous participator. This self-study with abstraction has then exposed me to uncertainty, conflict and failure in playful ways, improving my tolerance for uncertainty.

As a museum educator, I moved from the critical tradition towards experiential practices. At the Children's Art Museum, participation, multisensory activities and relational situations are set up for the whole family to explore abstract art. Children and adults are encouraged to use their senses and bodies, action, and movement in the space. The philosophical questions and wondering tone in the texts challenge the visitors to play with abstraction instead of shying away from the "difficult" art form. This approach was inspired by children themselves, who might know the abstract method better than adults. After the exhibition opened, I have studied the children's encounters with abstraction in the exhibition by inviting school groups to the Children's Art Museum. This material forms the basis for upcoming articles in my PhD project.

I started this chapter by citing some questions asked by Kirk Varnedoe (2003): *What is abstract art good for? What's the use of paintings that do not seem to show anything expect themselves?* (pp. 23–25.) Based on my post-qualitative inquiry and the process of curating *Abstraction!* at the Children's Art Museum, I can draw two conclusions. Abstraction, both when encountered in paintings and when the concept is used as a creative force, has much potential in educational purposes. Firstly, it is a great and safe opportunity to explore feelings of uncertainty and discomfort. By exposing ourselves to these feelings in playful ways, we might become more curious and tolerant towards uncertainty. Secondly, abstraction is a great tool to shake boring patterns that risk art to become too fixed and stiff. New and creative ideas rarely come from perfection and orderly systems that are stuck in safe methods, routines and traditions.

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The Virtual of Abstract Art: Museum Educational Encounters with Concrete Abstraction

Heidi Marjaana Kukkonen

Chapter is accepted, peer-reviewed and in editorial review for an international anthology at time of submission.

I sit on the floor of a large museum room, next to a group of 10–12-year-old children. I am observing a visit to the "Gunnar S. Gundersen – Groundbreaking Modernist" exhibition at Sørlandets Art Museum, a regional museum in Kristiansand, Norway. The guide in front of us is telling about the life of this Norwegian painter. We are looking at a large abstract painting with strong, black lines and complex forms. A boy tilts his head to the left, and says, "From this angle, the image looks like a machine…" Others follow the boy's example and tilt their heads to the left, looking at the painting. Then the boy gets on his feet and looks at the painting by slowly tilting his whole upper body to the left. For a brief moment, he is standing on his left leg and balancing his arms wide on his sides like an airplane, eyes fixed on the painting.

By following participatory observations methods with an approach inspired by new materialisms, I observe eight groups of 10-12-year-old children (altogether 145 visitors) on a visit to Sørlandets Art Museum where they encounter abstract art from the Norwegian modernist painter Gunnar S. Gundersen (1921–1983). The groups participate first on a guided tour with dialogue-based museum educational practices and then visit a digital installation curated by me and created by the Serbian artist Mirko Lazović in collaboration with the museum. The user-generated installation mediates Gundersen's philosophy of concrete art, inspired by the Swedish artist Olle Bonniér's writings. When visitors enter the room, an image projected on the wall begins to move and transform according to the visitors' movements. The visitors can play and interact with the changing and dynamic composition

inspired by Gundersen's *Black Sun* (1967).[1] When I observed the groups, the students began intuitively dancing, singing and playing with the installation. When the children encounter the paintings on the guided tour and interact with the digital installation, the *virtual* of abstract art actualises through discursive and affective routes.

In recent decades, only a handful of studies have been made about museum educational practices with abstract art, and these studies focus on meaning-making through language, such as a dialogue in a gallery space or other text-based learning tools (Pierroux, 2005; Hubard, 2011; Dima, 2016; Scott & Meijer, 2009). The situation described above, where the boy balances his body in front of the painting like an airplane, illustrates how abstract art can invite museum visitors not only for verbal interpretation, but for movement and multisensory experiences (see Figure 2). With an approach inspired by new materialisms (Kontturi, 2018; Bolt, 2004) my focus in this chapter is on the bodily and material aspects in encounters with abstract art.

The purpose of this chapter is to shed light on the *virtual* of abstract art, a concept informed by Gilles Deleuze (1988/2018). I theorize our encounters with Deleuze' theory about the *virtual* and *actual* based on Henry Bergson's philosophy. Matter and objects are not only physical and *actual* but also *virtual* (Deleuze & Parnet, 2002). In *Bergsonism*, Deleuze explains that *virtual* is past time, coexisting with the present, like codes that unfold themselves in the present moment (Deleuze, 1988/2018). Time is not understood as an external force, but through action and matter as continuous, immanent, and inevitable change. Deleuze explains that the *virtual* does not mean the opposite of the *real*, but the opposite of *actual*. Both virtual and actual are real (1988/2018).

In front of an artwork, the materiality suggests and urges us to action, like codes unfolding themselves, but the *virtual* is *actualised* only in lived experience. When I observed

[1] Gunnar S. Gundersen, 1967, *Black Sun*, acrylic on canvas, Sørlandets Art Museum, accessed 30 September <https://www.skmu.no/utstillinger/gunnar-s-gundersen-en-banebrytende-etterkrigsmodernist/>

the groups with abstract art, the children used their bodies in unexpected ways in order to view the paintings from different angles and to express themselves, and conversations with abstract art opened a flow of imagination among the students. I suggest that the virtual can be thought as all the different ways a work of art can be experienced, actualised both through language and bodies. I study how the virtuals of abstract art actualise on the guided tour and with the digital installation.

Exploring theory-practice

I have organized this chapter into four parts. In the first part, I introduce my methodological groundings. While my research design is situated in qualitative research and participatory observation methods (Szulevicz, 2020), my approach is influenced by new materialisms (Kontturi, 2018; Bolt, 2004). In the second part, I depict my curatorial plan for the digital installation, which the children visited after the guided tour. Instead of building a representation, I create a space where the visitors explore the philosophy of Gundersen's concrete art, inspired by the Swedish artist Olle Bonniér (Kokkin, 2020; Bonniér, 1948). In the third and fourth parts, I analyse with concrete examples from the observations how the virtuals of abstract art actualise in the encounters.

Gunnar S. Gundersen's art has been called by many names: abstract, non-figurative, concrete and constructivist (Kokkin, 2020). As often pointed out, there is no consensus of the art form's terminology in art history (Varnedoe, 2004; Kokkin, 2020). I use different terms throughout the text, and my decision in each case comes from the motivation to help the reader to understand the text. In addition, I intentionally play with the paradoxical relationship of *abstract* and *concrete* in the text in order to emphasize the paradoxical nature of abstract art.

Participatory observation with new materialisms

The groups participated first on a guided tour at the *Gunnar S. Gundersen – Groundbreaking Modernist* exhibition. The guided tour followed dialogue-based practices (Dysthe et al., 2012), focusing on art historical and biographical information, but also opening up for the students' intuitive interpretations and bodily expressions. After the guided tour, the groups had a workshop where they created abstract art, and then visited the digital installation in small groups. Since my focus is on the encounters with abstract art, I have decided to not include the workshop in this text.

The data for this chapter was collected by following participatory observation methods (Szulevicz, 2020; Warming, 2007). When the groups arrived at the museum, they were informed who I was, and asked if I could observe the visit. Since I did not know the groups beforehand, and the visitors did not expect a researcher to participate on the guided tour, I took a less visible role during the observations. My role can be described as 'observant as participant' (Warming, 2007). Most of the time, I silently watched, taking notes, but there were some occasions where I was actively participating in the situation. For example, the students or the guide would spontaneously engage me in a conversation, or I would ask a short question during the visit. When I observed the groups at the museum, I paid special attention to the movements and other bodily aspects of the visitors. In addition to writing, I drew sketches on the sides of the pages to document the movements. I paid close attention to "not to override material and corporeal intensities with textual and discursive powers" (Kontturi, 2018, p. 45).

Sometimes the students tried to express their thoughts but could not find the words. They started to gesture with their hands and bodies in order to express themselves. I suggest that the students found an *affective* route for the virtuals to actualise. The Canadian philosopher Brian Massumi's theory of affect (2019) is based on Deleuze & Guattari's and

Baruch Spinoza's writings. He says that affect is not an emotion, but intensity and "the *virtual* co-presence of potentials" (p. 5). The artist and theorist Simon O'Sullivan (2001), building on Massumi, writes that *affects* are "reactions in/on the body on the level of matter," and they can be described as "extra-discursive" and "extra-textual" (p. 131). However, the verbal and bodily expressions are often enmeshed in each other, and I regard the discursive and affective lines of actualisation as simultaneous instead of exclusive or opposites. Affect does not (always) happen *outside* of words, but *beyond* and *in-between* the discursive or structure. After all, language, too, has an affective register (O'Sullivan, 2001).

Kontturi (2018) writes that new materialisms take the "vital matter" of art into consideration (p. 14). She says that representational thinking risks a disregard of the unpredictable and creative materiality of art, particularly given that "the movement of art threatens to be reduced to meanings alone – and often to meanings that are already constituted, already known" (Kontturi, 2018, p. 28). Barbara Bolt (2004) makes the case that "representationalism" still dominates our contemporary way of thinking (pp. 12–13). Representation, according to Gilles Deleuze, is formed of opposition, identification, analogy and resemblance (1968/2001).

The curatorial plan in the digital installation

After the guided tour, the groups visited the digital installation in small groups. The purpose of the digital installation was to mediate Gunnar S. Gundersen's (1921–1983) art and philosophical ideas about abstract art. It was curated by me and created by the Serbian artist Mirko Lazović in collaboration with the museum.[2] From the first meeting onwards, we agreed to not create a representation or a simple copy of Gundersen's work, but to generate a space

[2] The installation was part of a larger exhibition that I curated for the museum. The museum applied and received funding for the exhibition from AKO Foundation.

where the visitors could explore abstract art through action and movement. Instead of asking what the artworks represent, I wanted to ask what they can do; or what we can do with them.

The curatorial plan can also be seen in the light of the virtual and actual. Here I am also loosely paralleling the concepts of *abstraction* and *concrete* together with *virtual* and *actual*. We would build abstract potential (*virtual*) which could then be concretised (*actual*) by the visitors in their own ways and premises. I wanted to curate 'an open solution' where the children are helped to get started, but where the outcome or action is not pre-described. I did not want to give ready-made answers about what abstract art is, but to provide a space where the visitors can test and experiment with the question themselves with open activities.

It was decided to use Gundersen's concrete philosophy as a starting point in the digital installation. While the museum communicated with Lazović mostly about technical matters, my role as a curator was to provide information about Gunnar S. Gundersen and the context for the project. *Concrete art* came to Norway after the Second World War from Sweden and France, and the international movement was influenced by Bauhaus, suprematism and neoplasticism in Europe (Gjessing, 1998). According to the Norwegian art historian and curator of the Gundersen exhibition Jan Kokkin, Gundersen was influenced by the Swedish artist Olle Bonniér's writings about concrete art (Kokkin, 2020).

Bonniér's text *Naturavbildning. Abstraktion. Konkretion. En begrepsutredning [Depicting nature. Abstract. Concrete. Investigation of the concepts]* (1948) is considered as "a manifesto for concrete art in Sweden" (Kokkin, 2020, p. 74). Bonniér writes that art is born through the connection between the image and the spectator. An artwork is concrete when it is perceived only as itself, not as a representation of natural or abstracted forms. He emphasizes that a painting should have a dynamic composition that creates movement to challenge the spectator's perception and makes the eyes wonder. The ambivalent image is undergoing continuous change and has a rhythmic matter (Bonniér, 1948).

The digital installation takes place in a darkened room (see Figure 1). Two projectors project an image on the wall inspired by Gundersen's art, with forms and metallic colours referring to Gundersen's *Black Sun* (1967). When a visitor enters the room, the installation

Figure 1: The digital installation. I point at the orange circle that depicts my movements in the space. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

recognises the body of the visitor, and a circle appears on the wall. The circle starts to move according to the visitor, drawing a trace, making it possible for the visitors to 'paint with their bodies' in the space, to interact with the changing and dynamic composition. Some of the elements in the installation have twists and randomness programmed into them to interrupt the visitors, for example, poking and following the visitor's circle to challenge the visitor to move and play.

Virtuals actualizing through differentiation and affects

We are sitting on the floor of a dimly lighted museum space. There is excited movement in the group: a girl is wiggling her legs on the floor and a boy next to her is slowly waving his upper body from side to side, his eyes on the guide. The guide says that the paintings around us are called concrete, and that they do not represent anything. When the children are asked what they think, multiple hands are raised. "I can see stones; they are in someone's tummy!" says a boy about a painting in front of us. "It is like Olaf's face in Frozen." A girl turns towards the back wall and says, "That one looks like a pelican standing on one foot." The guide looks thoughtful. "Wow, you have a great imagination…"

Throughout the guided tours, the children were pointing at figures in the non-figurative, explaining with words and showing with their bodies how the images reminded them of something familiar. These situations opened a flow of imagination among the children. Even if the activity seems to be based on resemblance and therefore representation (Deleuze, 1968/2001), I argue that the flow of imagination is based on *differentiation*, a character of *virtuality* (Deleuze, 1988/2018). The same painting is suddenly seen from multiple perspectives, each different to the next. The conversation takes a turn to the unknown and ambiguous in these moments, to a philosophical realm where there are no fixed answers.

This ambiguity and uncertainty might also create discomfort. There were occasions during the observations, where the students described the undecidability and the "lack" of fixed answers in abstract art as bothersome or annoying. However, these comments were the key moments that led towards engaging and critical conversations of what and how art can be. I suggest that we should stay and play in the realm of uncertainty – it can be an excellent site of learning for its potential to break old patterns and think anew, to reject tunnel vision and binary thinking, and to cope better with the unpredictability of everyday life. Abstract art is a safe and fun way to expose children (and adults) to contradictions and ambiguity. In addition

to uncertainty as an important site of learning, such conversations can have other educative benefits, too. According to Dysthe et al. (2012), a dialogue that opens for wondering, counter-perceptions and further reflection, promotes democracy and multivocality in the group.

The guide asks what the students think about the oil paintings around us. A girl answers, "They are abstract, and there is not always something particular in the image, you just make it and…" She tries hard to say what she thinks, but she does not seem to find the right words. She makes gestures with her hands in the air, messy circles and scribbles, as if she was intensely painting in the air. A similar situation happens when we have gathered to look at an oil painting called 'Snake and Bird' (1948). A boy says that it looks like a snake in a box, but he, too, struggles to find the right words. He starts to make snake-like movements with his arms, keeping his eyes fixed on the painting.

When the students got engaged in the conversation when looking at the paintings, many begun to use their bodies to find new ways to look at the images and express themselves. This created an extra-discursive and affective route to actualise the virtuals of the paintings. In one of the observations, a girl is leaning her body from side to side while sitting on the floor and watching a painting (see Figure 2). Then she gets on her back, lies a moment on the floor and lifts her body slowly up with her arms and hands. She looks at the painting with her head hanging upside down and describes the lines in the image, "The water is moving! Look!"

Here the painting is not only "read" and seen as an example of an art historical canon, but experienced and experimented with movement. Even if the activities focused on verbal conversations, the children used their bodies intuitively and sometimes unexpectedly in the conversations. However, the exhibition architecture itself can stop and start a dialogue (Dysthe et al., 2012). Since the groups were large and each room had a large number of

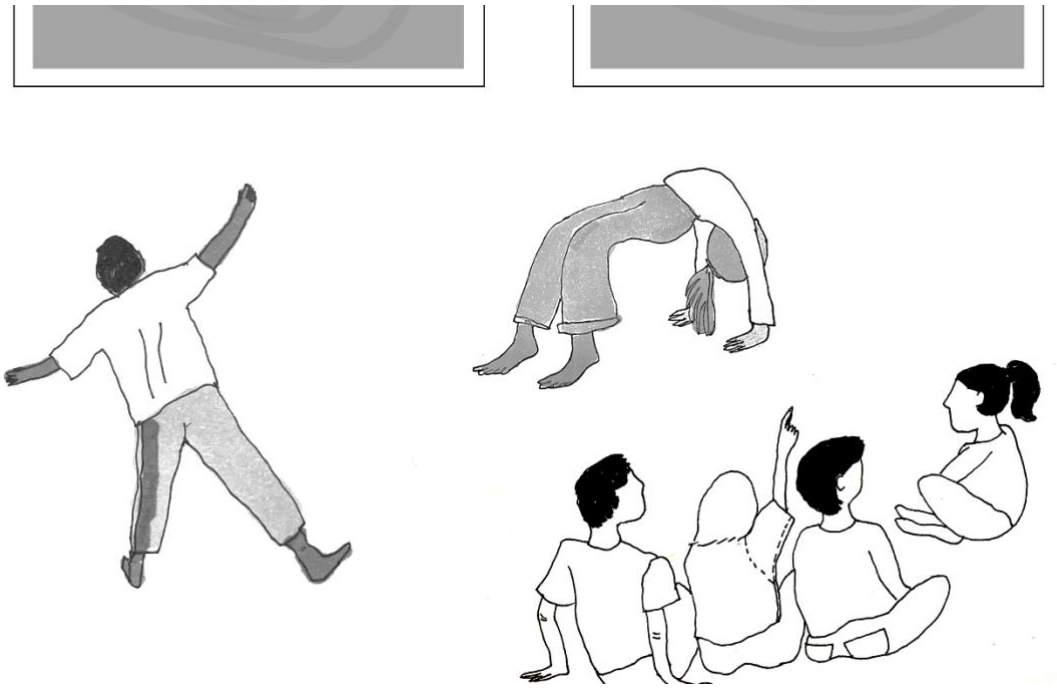

Figure 2: Figure 2: Illustration drawn by Heidi Kukkonen. On the left, the boy is balancing his body like an airplane. In the middle, the girl is lifting her body up from the floor while looking at a painting. Heidi Kukkonen © Heidi Kukkonen

paintings on the walls, there was not much room for the children to always move around, and the children were reminded several times during the guided tour to be careful and to keep distance to the artworks. The exhibition architecture might hinder the bodily expressions from happening, and therefore the virtuals from actualizing.

Failures or experiments? Dancing with the digital installation

Three students enter the dark room where the digital installation takes place, and the orange circles mirroring their movements appear on the wall. After a while, they notice that the circles follow their movements and leave traces on the background. All three are silently standing in a line, legs wide apart. When they place their weight from one foot to the other, the wooden floor makes creaky sounds. They begin to play with the sounds by putting as much weight as they can on the front leg. The rocking movement from one leg to the other becomes

a dance, and they throw their hair up and down in the same rhythm, as if they were in a concert. The circles and elements are violently shaking on the wall.

In many of the observations, the students begin to intuitively dance in the room. In the situation described above, the dancing happened without words. The students followed silently each other's movements and experiments. The virtuals of the digital installation actualised not only in direct connection with the literally *virtual* body of the digital installation, but in relation to other bodies in the room and the materiality of the space, such as the creaky wooden floor. In one of the observations, a girl began to sing while she danced, and the others join in her singing, while they danced a choreography that they all seem to be familiar with. The *virtual* can therefore not only actualise, but the actions create more virtuals, as the students follow and interrupt each other's movements.

A girl enters the room and walks towards the moving image on the wall. Then she turns around and looks curiously straight to the projectors. She studies her clothes, covered by the projected images. She looks mesmerized, watching her own hands and body in the light, and touches slowly her sweater where the elements are vibrating.

Brian Massumi (2015) writes that experimental measures can make it possible to access more of the *virtual*: "we can access more of our potential at each step, have more of it actually available" (pp. 5–6). In the encounter described above, the girl is playing with the installation in an unexpected way. Instead of facing the moving image on the wall, she looks into the opposite direction; straight into the projector, breaking the expected pattern of the situation. She then uses her own body instead of the wall to study the projected images. This can be seen as a 'failure' in understanding how the installation works, or as an experiment leading to something new, yet another virtual actualised in the situation. Similar actions happened many times with the children, something I had not anticipated as a curator. These situations encouraged me to let go some of the control, to trust the children, and to let the

museum educational situations unfold in their own pace without constant guidance and instructions.

Conclusions

'Reading' abstract art on a guided tour awakens a representational conflict and creates a flow of imagination among the children, creating a safe opportunity to encounter uncertainty and ambivalence. Staying and playing in the realm of uncertainty can help us to break old patterns and to think anew, to reject tunnel vision and binary thinking, and to cope better with the unpredictability of everyday life. We learn to see things from other's perspectives: counter-perceptions promote democracy and multivocality in the group. In-between, beyond and outside of the discursive structure, the *virtual* of abstract art actualises through the intuitive movements and bodily expressions of the children. With the digital installation, the children are playing, dancing and singing, actualising the *virtual* and digital materiality of the installation, or as one of the students says during her visit, "You can make art with your body!"

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Peer-reviewed article

"Can I go into the artwork?" Material–relational situations with abstract art

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Abstract
The purpose of this article is to study museum educational situations, where 5–7-year-old children encounter abstract art, from a new materialist perspective. The children visit an exhibition curated by me, where abstract modernist art is mediated, with an emphasis on multisensory experiences and experimentation. The visits were recorded with stationary and action cameras. By focusing on material–relational situations, I investigate how learning takes place when the children engage with the museum educational setting. A girl asks a surprising question that challenges the taken-for-granted beliefs about what art can be. The children break rational and logical patterns by creating abstract art, and "aesthetic-intuitive order" takes place in the compositions. A child and an adult relate differently to the agential "teaching matter." Embodied and material pedagogy with abstract art indicates how "making sense" of the world is not only done in verbal and logical ways but also by experimenting with bodies and senses with teaching matter.

Keywords: *abstract art; abstraction; museum education; new materialisms; material and embodied pedagogy; material–relational situation; visual ethnography*

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Introduction

In this new materialist study, I investigate children's encounters with abstract art as material and embodied pedagogy by focusing on *material–relational situations*. Two groups of 5–7-year-olds visit an abstract modernist art exhibition that I curated in 2020 for the Children's Art Museum, a section dedicated to children inside Sørlandets Art Museum in Kristiansand, Norway.[1] Nordic post-war abstract art from the Tangen

[1] Sørlandets Art Museum applied and received funding for the exhibition from AKO Foundation.

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Collection[2] was displayed together with activities and digital solutions. The museum educational setting emphasised experimentation, movement and multisensory experiences with abstract art. Art is not only read as representations of different canons in art history but approached as openings for material–relational situations that bring new understandings to light.

Several studies in museum education and closely related fields that use post approaches, such as post-humanisms and new materialisms (Booth, 2017; Feinberg & Lemaire, 2021; Grothen, 2021; Hackett et al., 2018; Medby & Dittmer, 2020; Sayers, 2015) and decolonial theories (Mulcahy, 2021; Rieger et al., 2019) have been published in recent years. For example, Feinberg and Lemaire (2021) write about pedagogical approaches to guided visits in museums that emphasise embodied knowledge and affective responses. Grothen's (2021) doctoral thesis explores visitors' experiences in art museums and the question of how to access such knowledge with a theory derived from Deleuze and Guattari (1980/2004). A special issue of *Children's Geographies* (Hackett et al., 2018) focuses on children's presence and learning in museums from embodied and material perspectives.

The present text has a focus on museum educational situations with abstract art. Little attention has been paid to material–relational and multisensory encounters with abstraction, with recent studies focusing mainly on meaning-making through language, such as a dialogue in a gallery space or other text-based learning tools (Dima, 2016; Hubard, 2011; Pierroux, 2005; Scott & Meijer, 2009). Although some studies include abstract art as examples when discussing embodied learning (Hubard, 2007; Roldan & Ricardo, 2014), they do not pay further attention to abstract art.

Focus of this article

My aim is to study how material and embodied pedagogy, underpinned by new materialisms, opens perspectives for learning when children encounter abstract art in a museum space. First, I introduce the material and embodied pedagogy underpinned by new materialisms, according to Page (2018, 2020), and the concept *material–relational situation***,** which I form from the writings of Page (2018, 2020) and von Hantelmann (2014). This is followed by describing my methodological approach, inspired by visual ethnography (Pink, 2021) and the use of action and stationery cameras in the study. Next, I present the experimental exhibition, the concrete research design and ethical considerations. By analysing four material–relational situations, I investigate how learning takes place when the children experiment with abstract art in the museum educational setting.

[2] About Tangen Collection, see Sørlandets Art Museum, 2021.

Embodied and material pedagogy underpinned by new materialisms

New materialist theories understand matter not as passive substance but as agential, relational and unpredictable, constantly changing and becoming (Coole & Frost, 2010; Page, 2018). In acknowledging matter this way, new materialisms offer an alternate understanding of human and non-human relations and pedagogy. The entanglements of the body and matter are a way to learn from and with the world (Page, 2020). My new materialist approach in this study is inspired by the writings of the artist–researcher and teacher Page (2018, 2020), the art historian Kontturi (2018) and the artist and art educator Salminen (1939–2003).[3]

While new materialisms were not yet an established paradigm, Salminen (2005) offers thoughts about art and art education in texts published in the 70s, 80s and early 90s, which, I suggest, can be described as new materialist. Salminen (2005) criticises dogmas in educational philosophies and wider society that new materialisms are questioning today. Knowledge gathered by the senses is regarded as less important than mathematical and verbal knowledge if it is understood as knowledge at all. Acquiring knowledge in the world does not occur only numerically and verbally, but also nonverbally and alogically through the senses. Visual art and art education develop the skills to understand and find meaning in the world that we can perceive through the senses.

Salminen (2005) refers to the ecological psychologist Gibson (1966) when arguing for the importance of the body in (art) education. Gibson showed that when humans perceive their surroundings, they do not first perceive the qualities of objects, but their affordances: the abilities and opportunities the object has for action. Perception is therefore uninterruptedly connected to its environment (Gibson, 1966, as cited in Salminen, 2005). Furthermore, eyesight is always connected to the other senses, and the eyes are in constant movement. Salminen (2005) writes that perception is not "a forever present-tense cut from the timeline", as is traditionally thought, but is instead a continuous process in time and space (p. 83). These thoughts further an argument for movement in the exhibition space: embodied pedagogy in museum education. This encourages the use of the whole body and its senses in space when experiencing paintings and other forms of art.

Page (2018, 2020) develops a new materialist theory of pedagogy: an embodied and material pedagogy. Although Page writes in a higher education context, she encourages the use of the theoretical approach in all learning environments. She explores "how materials teach us and how we learn through and with the body" (Page, 2018, p. 1), positioning the body as a source of knowledge. Learning occurs when we participate with our bodies in a sociomaterial world. Multisensory experiences become knowledge on how to live and engage with our environments.

Embodied pedagogy happens together with *material pedagogy*. Agential matter teaches us with its movements and surprises. It "inspires and demands attention, and through

[3] I thank Irma Salo Jæger for introducing me to Salminen's writings.

engagement with matter, new modes of practice transpire" (Hickey-Moody & Page, 2015, p. 16). What happens between our bodies and matter, the entanglements of bodies and the world, or *intra-action* according to Barad (2007), is what Page (2018, 2020) calls pedagogic. This question has also been studied by other researchers in posthuman educational research (e.g., Murris, 2016; Plauborg, 2018; Taylor, 2013, 2020).

Artworks are not only representations of art historical canons. I approach them as *material–relational situations* that happen like events. I build this concept from two sources: the material–relational comes from the material and embodied pedagogy after Page (2018, 2020), and the situation is derived from von Hantelmann (2014). von Hantelmann argues that the experience of the spectator has become an integral part of the artwork's conception since the 1960s. Artwork is no longer understood as an object bearing meaning but as a situation experienced by the spectator. This notion blurs the traditional lines of the subject and object, focusing on the situation and performative actions in museum educational encounters. I propose that subjects and objects remain, but that the lines are moving and transient.

Following the theories of critical pedagogy (Freire, 1970; Giroux, 2003; hooks, 1994), Page (2018) criticises pedagogies in which teaching and learning are regarded as passive transmission of knowledge from the teacher to the learner. When one focuses on material–relational situations instead, it becomes less difficult to question dominating understandings. I argue that the interplay between the teacher and the learner and human and non-human matter is not a linear dialogue from A to B, but a rhizomatic (Deleuze & Guattari, 1980/2004) situation of becoming matter (Kukkonen, 2022). Given that the focus lies on intra-action between bodies and matter instead of static entities and top-down linear transmission of knowledge, dominant roles, beliefs and practices become easier to challenge. Embodied and material pedagogy can therefore offer sites of emancipation and transformation and can contribute to democracy and citizenship (Page, 2018).

Visual ethnography

My methodological approach is inspired by visual ethnography, according to the social anthropologist Pink (2021). I wanted to make video recordings to study the relations between children, artworks, activities and the space in detail. Visual ethnography offers a way to understand those aspects of experience that are "sensory, unspoken, tacit and invisible" (Pink, 2021, Visual Ethnography and the Sensory Turn section, para. 1). The approach abandons the idea of text as a superior medium of ethnographic representation, arguing that images should be regarded as equally meaningful (Pink, 2021).

Considering that the complex exhibition space is difficult to film with only stationery cameras, I used three additional action cameras attached to vests that the children wore during the visits. Several studies discuss body-mounted technologies as data gathering tools (e.g., Caton, 2019; Hov & Neegaard, 2020; Lahlou, 2011; Lofthus & Frers, 2021; Pink, 2015, 2021; Vannini & Stewart, 2017). Given that

I used both stationery and action cameras, some situations were filmed multiple times. When I watched the video material, I noticed how much the action camera could confuse the situations for the viewer of the film. For example, the body-mounted camera does not show the face of the person wearing the camera, making it challenging to distinguish voices and understand expressions. A clatter soundscape is created when the camera bumps constantly into the clothing of the child wearing the camera and different materials in the exhibition space. I also became more aware of my limits as an adult and a researcher in understanding children's experiences when I watched the video material. I noticed many meaningful things happening in situations that seemed chaotic from my adult perspective during filming.

Pink (2015, 2021) and Lahlou (2011) describe the body-mounted camera perspective as a "first-person-perspective". Hov and Neegaard (2020) write that "GoPro action cameras can provide natural data from a child's perspective" when the action cameras are attached to vests and worn by children (p. 15). Although I agree that body-mounted technology can provide closeness to the participants and the situations, I align my thoughts with studies that critically discuss understandings that privilege the human subject, noting that the action camera is part of a hybrid (Lofthus & Frers, 2021) or an assemblage (Caton, 2019) encompassing human and non-human agencies. The camera, the participants, the researcher (both during and after filming) and the material environment where the filming takes place all have agency in the process and can be seen as co-producers of the perspective.

Museum educational setting at the Children's Art Museum

Christensen-Scheel (2019) detects two overlapping paradigms in today's museum education: critical and experiential traditions. She states that the museum education in Scandinavia and elsewhere in Europe leans towards the critical tradition, based on critical philosophy and art's aesthetic autonomy, drawing from the writings of Kant (1790/2007) and Adorno (1970/2013). An example of the critical tradition is a guided tour that emphasises art historical and biographical knowledge and pays less attention to senses and the visitor's experience.

In recent decades, many Scandinavian institutions have developed their educational practices towards more experimental settings (Illeris, 2015). Relational and performative approaches (e.g., Aure, 2011, 2013; Aure et al., 2009; Illeris, 2006, 2016; Skregelid, 2019), as well as the post approaches in museum education, challenge the traditional setting by focusing on *situations* instead of passive transmission of knowledge from teachers to learners, inviting visitors to participate in activities and multisensory encounters with art. I have elsewhere described in detail how I moved from traditional practices towards experiential museum education when I curated the *Abstraction!* exhibition (Kukkonen, 2022).

The Children's Art Museum encompasses three rooms and a walk-in climbing cabinet. The space has permanent wooden installations where children can roam

around artworks that are inside see-through showcases (Figure 1). My curatorial plan was to create a space where visitors can explore abstraction with their bodies, senses and action (Figure 2). The activities are open in the sense that there are no predetermined right answers, but a laboratory space for experimentation. The wall texts provide an art historical context, together with philosophical questions that encourage the visitor to philosophise with abstract art. The *Abstraction!* exhibition took place in many spaces, but my focus in this article is on two rooms.

Figure 1. Museum educational setting in the first room. Photo: Heidi Kukkonen

The first room displays two abstract paintings from the Finnish-Norwegian artist Irma Salo Jæger: *Breakthrough* (1965) and *The Wellspring appears* (1961) (see Figures 6 and 7). Both paintings, made with oil paint on canvas, are from the early years of Salo Jæger's career. The large works have thick layers of paint and rectangular forms. Colours inspired by the paintings are installed on the cabinet boxes with lights shining through the coloured sheets. The wall text about Salo Jæger's art encourages visitors to pay attention to the agency of the material–relational paintings (Figure 3). The philosophical questions challenge visitors to think about the materiality of colours.

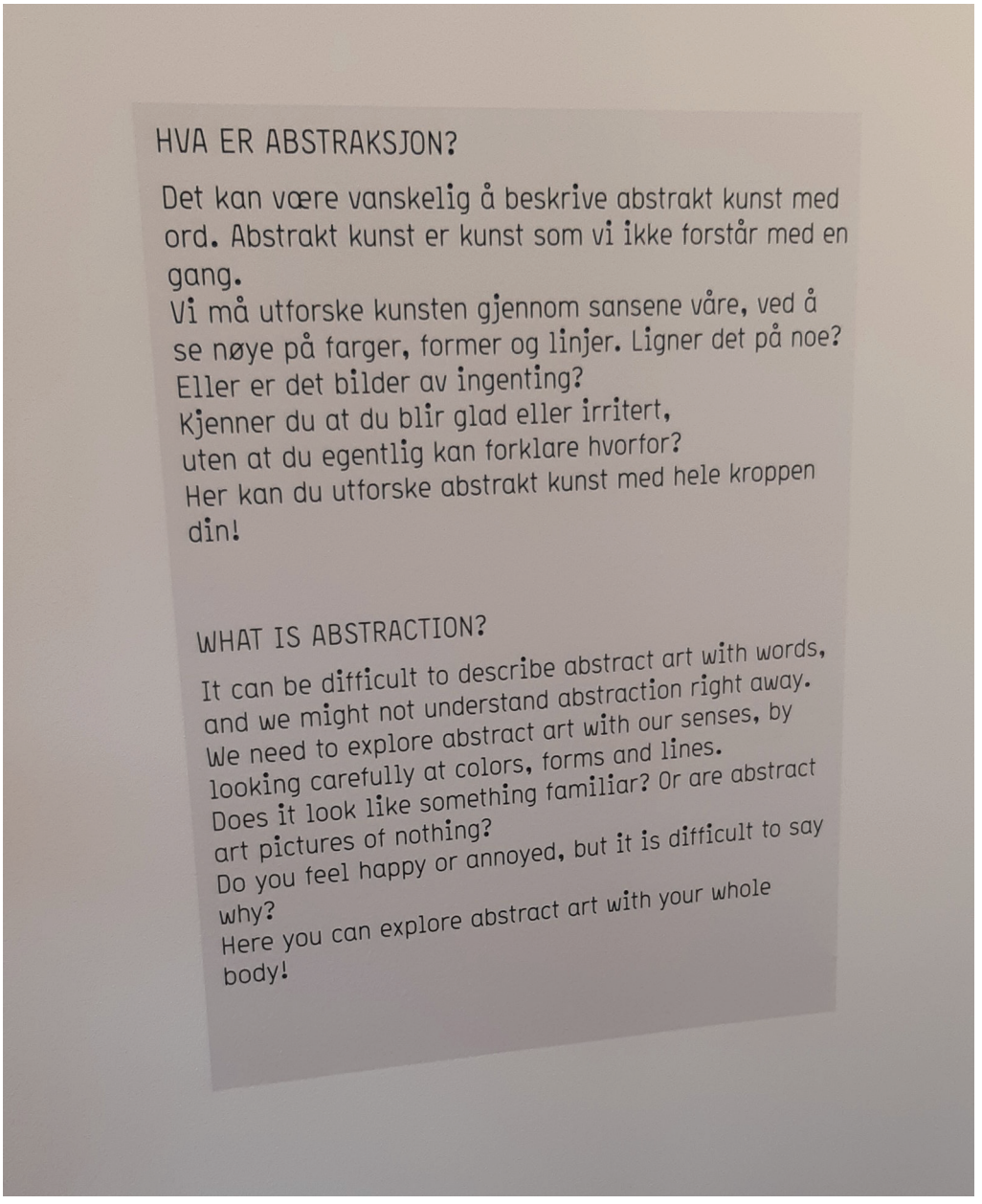

Figure 2. Wall text, written by me, in the first room. Photo: Heidi Kukkonen

The children receive a canvas bag with coloured plastic sheets and cubes when they enter the room (during the visits, I handed the bags and told the children that they can use the insides to explore abstract art). Visitors can build their own abstractions by experimenting with lights and colours on the large wooden cabinet. One of the

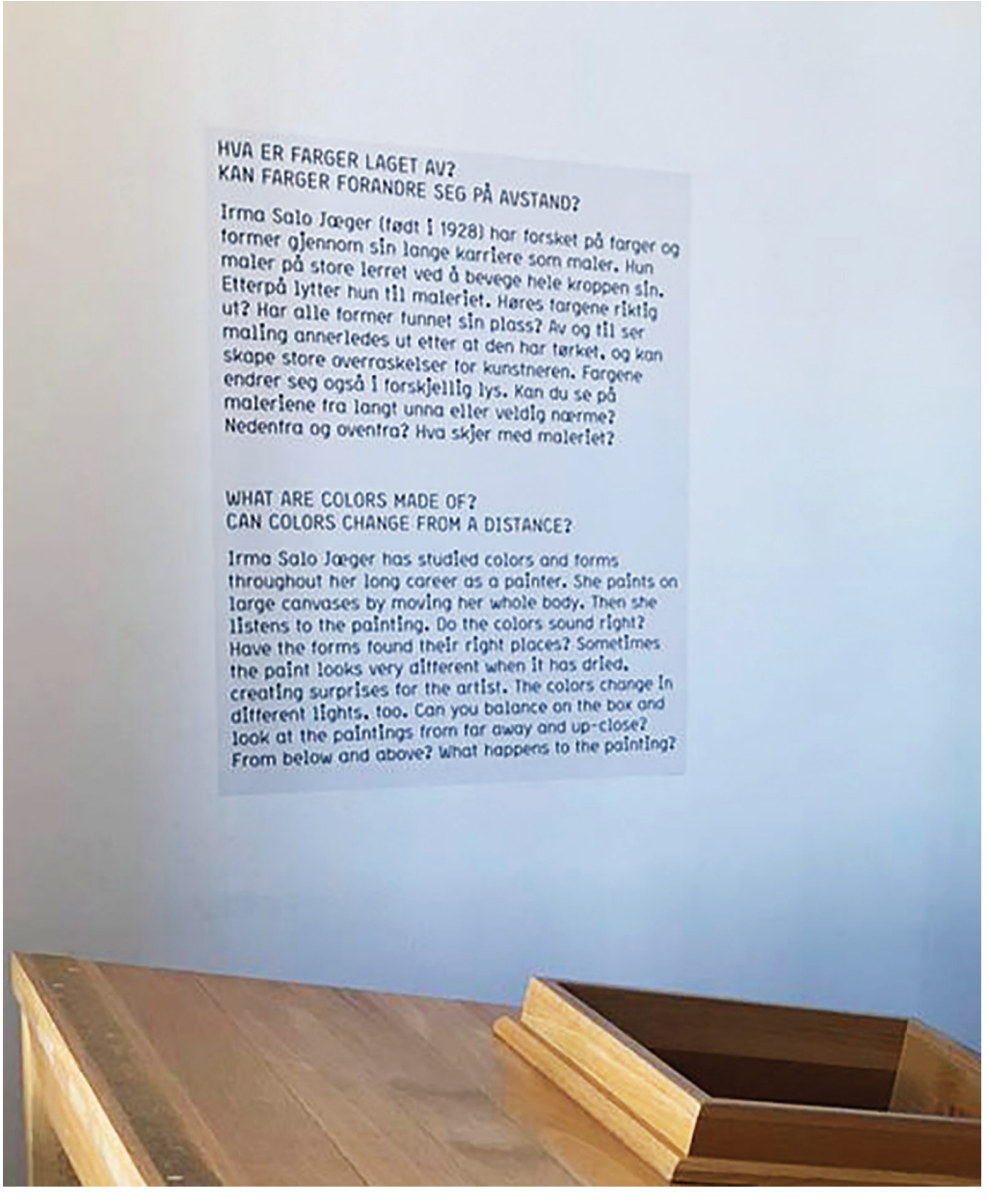

Figure 3. Wall text, written by me, in the first room. Photo: Heidi Kukkonen

built-in boxes contains an action camera, and the spontaneous artwork appears on two screens under the cabinet (see Figure 1). The digital element adds movement and unexpectedness to the art making, given that visitors cannot create and see the result at the same time. It also encourages collaboration: Some can perform, and others can watch and guide the art making.

Figure 4. Museum educational setting in the second room. Photo: Heidi Kukkonen

On the other side of the Children's Art Museum, Vladimir Kopteff's (1932–2007) and Outi Ikkala's (1935–2011) geometrical abstract art is displayed on a wall and in a glass cabinet. A large replica of Kopteff's *Serigrafia IV* (1974) is installed on the floor (Figure 4). The carpet functions like a game of Twister, inviting children to invent their own rules and play with the abstract patterns of the life-sized board game. The wall text next to Ikkala's art challenges the visitor to pay attention to the complexity of our perception and imagination and to test the ideas out (Figure 5).

Research design and ethical considerations

Primary school students in first and second grade (5–7-year-olds) participated in the project. The project plan was approved by the Norwegian Research Council of Research Data before I contacted the school. Two groups encompassing ten and six children, one teacher, two teacher assistants and a person working at the museum, participated in the study. The participants (and the parents/guardians of the children) received an information letter and signed a letter of consent. I met with the teacher, one of the teacher assistants and the museum worker before the visits. We discussed

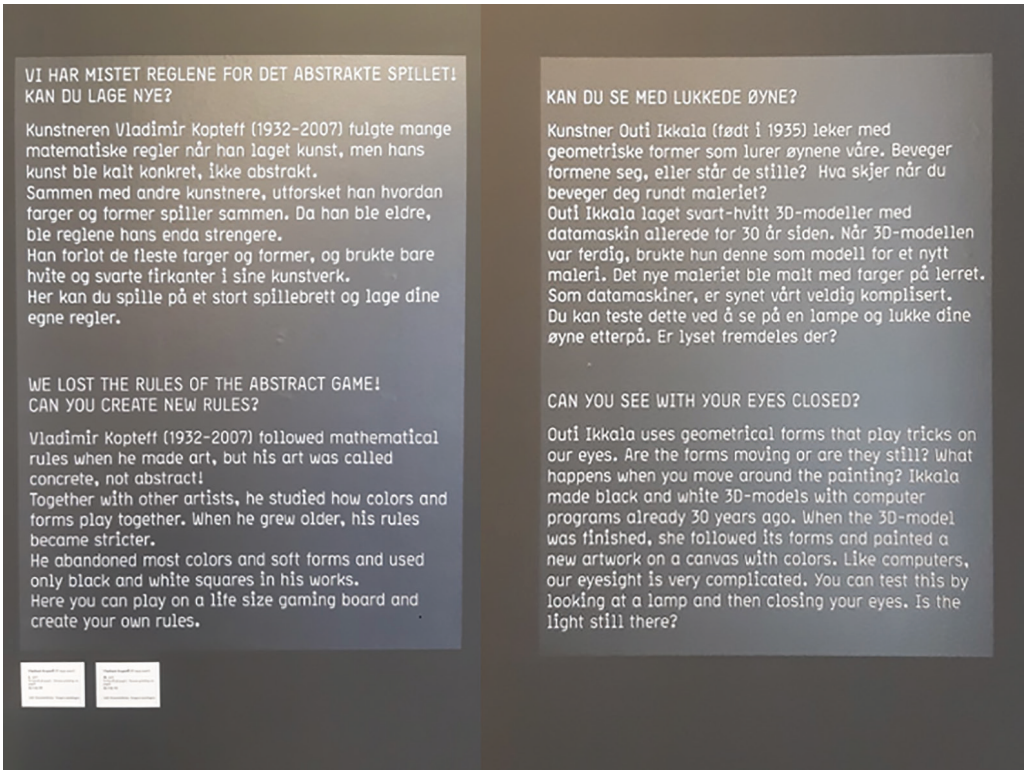

Figure 5. Wall texts written by me. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

possible problematic situations when it might become necessary to stop filming, and we tested how the action cameras work.

The groups visited the exhibition on separate days. The visits were filmed with three stationary cameras and three GoPro cameras. When the group arrived at the museum, I and the museum worker welcomed the group. We introduced ourselves and discussed the purpose of the visit and the research project in a way that was possible for the children to understand. Why are we here today, and why do we have cameras filming during the visit? What does it mean to research something and what do I research? I told the children that the space has "abstract art, paintings with lots of colours and forms," and that they can investigate further in the exhibition what abstract art can be.

The children who had consented to wear an action camera were then assisted to put on vests, and I briefly explained how the action cameras work. To set the children's focus more on the exhibition than the filming, I emphasised to them that the cameras film "by themselves" and do not need special attention. However, this might be ethically problematic, given that such encouragement might make the children forget that they are wearing cameras. As explained by Hov and Neegaard (2020), if children forget that they are wearing cameras, they might say and do things without

full understanding that the actions are being recorded and analysed by researchers, which raises the question of consent.

The children were divided into groups of three or four, starting from different rooms. They were then free to move in and between the spaces at their own pace, spending 30–45 minutes in the exhibition. Most of the time, I observed the situation silently. Sometimes I started a conversation with the children, or they engaged me by asking questions or showing me what they were doing. The teachers' role was to be present in the space, and they could participate in the children's activities when they wanted to.

The children were encouraged throughout the visit to tell an adult if something is wrong, and I paid special attention to the children's body language. As Robson (2011) notes, children do not have the same verbal skills as adults to express themselves, which is why the researcher must be attentive to the children's body language as well to detect possible discomfort. However, I found this challenging since I did not know the children and their personal ways of expressing themselves from before.

"Glowing" data—four material-relational situations

Next, I analyse four situations from the children's encounters with abstract art as material—relational situations. The situations are all moments that have stayed on my mind after filming and watching the videos, sometimes troubling me, which resulted in including them in this study. I consider these moments as data that "glow;" according to MacLure (2013):

> Data have their ways of making themselves intelligible to us. This can be seen, or rather felt, on occasions when one becomes especially 'interested' in a piece of data – such as a sarcastic comment in an interview, or a perplexing incident, or an observed event that makes you feel kind of peculiar. (pp. 660–661)

Something material–relational happens in the situations, which, I argue, creates important sites of learning, both for the participants and me as a museum educator, researcher and the curator of the setting. The situations challenge more traditional patterns, where the expert museum educator mediates knowledge about an art object, privileging rational, pre-determined understandings, and the child listens and learns. As mentioned above, I have previously worked mostly with traditional museum educational practices. Although the Children's Art Museum and my curatorial plan focus on experimentation, and the situations are analysed from a new materialist perspective, I continue to recognise the more traditional museum education taking place in my expectations and reactions. I believe that the "glowing" data trouble those patterns of thinking.

Philosophical questions as openings to material–relational situations

> *Four children enter the space and walk towards the large paintings, leaning their heads backwards to see them better. Their eyes move upwards from the paintings towards the sculpture in the corner. One of the children addresses me when I enter the room (Figure 6).*

She points at the "Breakthrough" painting from Irma Salo Jæger and asks with a clear voice, "Can I go into the artwork?" I get confused, and she repeats the question. We look at the painting again, and now all the children are following our conversation. "No … I mean, can you?" I answer. She takes steps closer to the painting and says, "Yes, we can try?" Then, she smiles, shrugs her shoulders and looks at the painting with a wondering look on her face.

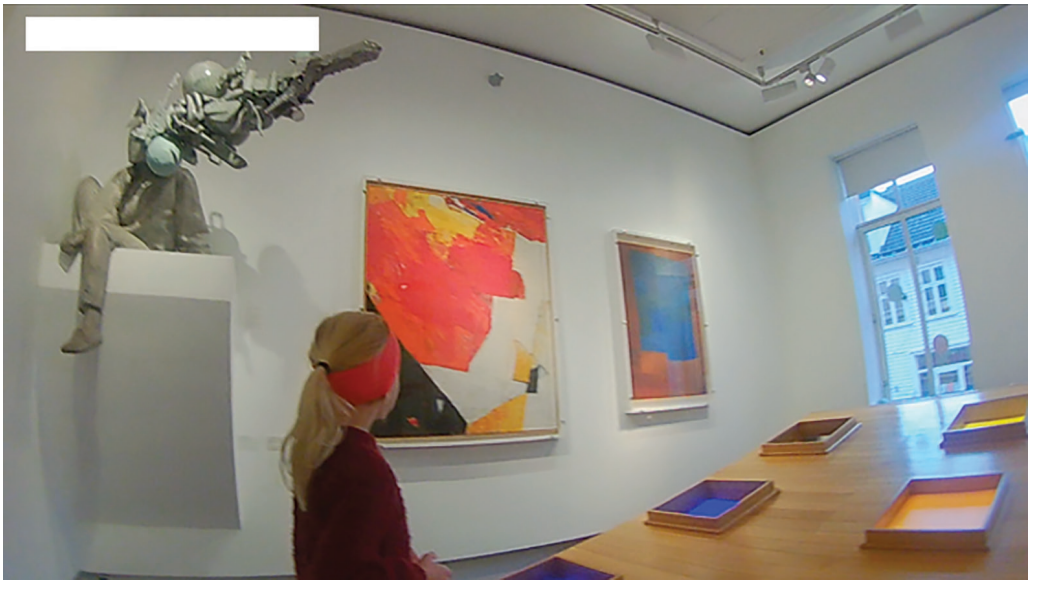

Figure 6. Can I go into the artwork? Still image from a video recorded by an action camera. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

The girl herself did not seem to think that the question, which surprised and confused me, was strange at all, asking and repeating it with genuine immediacy and curiosity. As I struggled to answer her, I imagined the absurd idea of children flying inside the painting, and my first impulse was to remind the children not to touch the art. However, I soon understood that the question provoked by the painting was philosophical and playful, not concrete but abstract, and that answering it by rationalising and instructing her would miss the point of the conversation. The question itself is a way of *going into the artwork*—by engaging and interacting with the painting. In the next paragraphs, I will regard the moment as a *material–relational situation*.

The museum educational setting where the situation happened blurred the traditional lines of the museum visitor and the art, the subject and the object. Instead of asking the children to sit still on the floor while learning (conversation) takes place (a common practice when groups of children visit exhibitions), the setting encouraged the children to actively move around and to look at the paintings from different

angles. They were encouraged to create their own abstract compositions in the space, which also blurred the lines between the artist and the audience. In addition to these elements, the colours and forms of the wooden installation resembled Salo Jæger's paintings on the wall, creating an immersive learning space. Several children paid attention to the immersiveness during the encounters, commenting on the resemblance of the paintings and the installation *(It looks like we can go into the artwork!)*. The educational setting was built on *situations* and *action* rather than the separation of subjects (visitors) and objects (paintings) (Kukkonen, 2022).

The question asked by the girl can be understood as ontological contemplation about art, a big philosophical question that children are talented in asking (Olsson, 2013). Although the question can easily be regarded as absurd, I propose that it is very relevant to learning. Where does the painting begin and end? Where do I begin, and where do I end? What can I do and not do with the artwork? The question is curious and challenges the obvious presuppositions. I used similar philosophical questions in the exhibition texts to encourage visitors to wonder and philosophise *(What are colours made of? Can you see with your eyes closed?)*. The paradoxical questions do not have fixed right or wrong answers but demand complex understandings. The visitor is *playfully* challenged with mind-meddling questions; if the situation has no playfulness and becomes too serious, the visitors will most likely lose their interest.[4] Playfulness makes it possible to experiment, test out new understandings and see things from multiple perspectives, given that no actual risk of failure exists.

Can I go into the artwork? From the perspective of new materialisms, an artwork is understood more as a material–relational situation than as a static and mute object. Paintings are often approached in their "still finalities", but they also have movement: "Brushstrokes have their rhythm, paint cracks quietly" (Kontturi, 2018, p. 9). The children take steps closer and further away from the painting; they arch their backs and lean their heads backward. Page (2018) writes how material and embodied pedagogy happen through the entanglements of subjects and objects in the event and actions. I argue that the question asked by the girl is this *action between* and the *entanglement of subject and object*. The painting becomes an opening for intra-action and play—a material–relational situation.

Breaking patterns through artmaking

> *A boy looks into his canvas bag. "What are we supposed to do?," he asks. He begins to follow the others who are sorting out the components in the big squares on the wooden installation according to their colours. His friend holds a green sheet in his hands, looking around the room (Figure 7). "Where is the green box?" Two others negotiate where the violet cubes should go—there are no green or violet boxes. Then, one of them begins to*

[4] I align my thoughts with Harker's (2005) understanding about playing as becoming and difference. Inspired by Deleuze (1988), he highlights the notions of embodiment, affect, objects and time–space as important aspects of playing.

read the instruction sheet found in the bag, slowly spelling the text. "We will make ART here!," he announces loudly to the others. They all look surprised, looking around the room with round eyes. "Let's gather all the cubes and sheets into this box," a girl says. She turns around the canvas bag in her hands, and all the components left in the bag fall into the box.

Figure 7. Children try to find the colour green from the room. Still image from a video recorded by an action camera. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

A similar situation, which I had not expected, happened four times during the filming. Children enter the room and begin to sort out the colours. It becomes a play; they exchange sheets and cubes and help each other out in the sorting process. They all face the same problem: there are no boxes for violet or green components, and they begin to negotiate where these could be placed. The situation changes completely when they find out that they can make *art* in the space (either the children manage to read the instruction sheet themselves, or I or the teacher reads it to them, when we notice that they cannot read the note). Suddenly, they need all the colours, also the green and violet, and begin to mix them in and outside of the boxes.[5]

It is noticeable how the children who participated in the artmaking understand the concept of art as an opportunity to break and mix the sense-making patterns. They are suddenly allowed to experiment, and they no longer pursue sorting and

[5] The artmaking seemed challenging when there were more than four children in the space. Some children begun to sort the colors again after a while. Some did not want to make their own artworks but were motivated to look for sheets and cubes for the others or simply watch the artmaking.

organising according to already-known logical patterns. The children begin to create their own abstract artworks that grow out of the boxes. Salo Jæger's paintings, where the shattered forms and colours mix into each other, hang on the wall, epitomising the experimental qualities of art. O'Sullivan (2006) writes that art is an entry point to see beyond the recognisable and reassuring, "a line of flight from representational habits of being" (p. 30). Salminen (2005) also writes how art's task is to scrutinise and dismantle cliches and "saturated thoughts" (p. 186). New materialisms (e.g., Kontturi, 2018) and material and embodied pedagogy (Page, 2018) encourage to follow the movements of materialities—to engage with the world with the body instead of observing and analysing it from a distance. I argue that artmaking in the space entangled the children closer to the space and abstraction, encouraging them to experiment instead of repeating what they already knew.

Experimenting with human and non-human matter

> *A girl is creating artwork on the yellow box. She places cubes of different sizes and colours on the lower side of the box, carefully adjusting them to their place. Someone tries to change the composition, but she stops him. There seems to be a plan that takes place even if the order of the cubes seems arbitrary. She goes to look at the screen to check what the composition looks like. "I will make a fine artwork …," she says and grabs her striped wool shirt. The girl sets the sweater on top of the yellow box, and stripes and patterns appear on the screen below the wooden installation (Figure 8).*

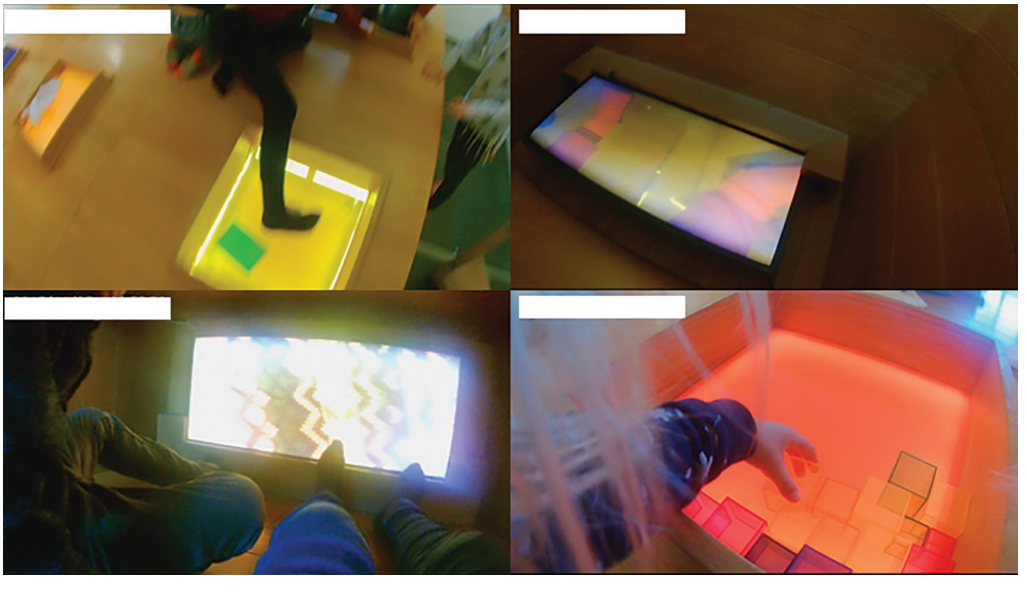

Figure 8. Children make abstract art by experimenting with the cubes and sheets, their bodies, clothes and the space. Still images from videos recorded by action cameras. Photo: Heidi Kukkonen © Heidi Kukkonen, 2020

Kontturi (2018) writes that experimentation is "relational matter in movement, in transformation. Matter as intensity is not a calculable quantity, but a quality that can only be experienced – and experimented with" (p. 39). In the situation above, the girl's own sweater–matter decorated with abstract patterns transforms into artistic matter in the experimentation. During the encounters, not only the designated materials but also the extra clothes, as well as the canvas bags and instruction sheets, became part of the abstractions. While art making is always embodied, the matter of human bodies becomes artistic matter as well in a very concrete way, when the children adjust their hands, feet and faces into the box with the other components (*going into the artwork!*). However, art making is not only wild experimentation or "anything goes." "Aesthetic intuition" seems to take place, even in the most abstract compositions. The children compose the pieces carefully and deliberately in their places. The "order" that takes place is not logical, but intuitive, aesthetic and visual.

Hickey-Moody and Page (2015) write that matter "shows us the limits of the world as we know it and prompts us to shift these limits" (p. 5). The children come across the limits of the space and their bodies: someone bumps on the composition, the children agree and disagree on how the composition should be built, and the camera and the screen change the colours and proportions of the composition. The boxes are slightly tilted so that the sheets and cubes slide down here and there, causing the children to change their artworks or find ways to keep them in place. Wearing soft fabrics, their bodies slide down the smooth wooden installation as they try to adjust their assemblies. The compositions appear on the screen below the installation, and they need to climb down or collaborate with others to see what their experiments look like. The children come up with creative solutions, pushing the limits of the space and their bodies further. They place their feet on the box and hang their heads upside down from the window to see their feet appear on the screen (Figure 8). When they cannot reach the window or the screen, they ask a friend or teacher to check the screen for them, and they begin to build the compositions together.

Showing their artworks to each other becomes an important part of the process (Figure 8). Looking at the artworks appearing on the screen brings joy—the children laugh and change roles again (the composer becomes the spectator and vice versa). Salminen (2005) writes how art education's task is to show that being creative does not need to be pompous, overly strange or a continuous vortex of breath-taking emotions. The enjoyment is often created when old and familiar is seen in a new light and newly discovered through *someone else's* eyes, communicated through art. Art is relational, "not just saving to one's own piggy bank" (Salminen, 2005, p. 186). When the children experiment with their abstractions, show their abstractions to others, see them appear on the screen, as well as when the sweater–matter and human-matter become artistic matter, something is seen in a new light, entangled in a new way. The matter "shows them otherwise" (Hickey-Moody & Page, 2015, p. 16). I suggest that this is also the aspect of art that the *new* in new materialisms points out

to—the continuous processuality and the unpredictable unfolding of any materiality (Kontturi, 2018; Tiainen et al., 2015).

Matter teaching children and adults

> *A teacher reads a wall text about the artist, Vladimir Kopteff. She steps on the large replica on the floor where the children are hopping and playing on the abstract patterns. Then, she takes a hesitative look inside the mirror cabinet with abstract geometrical art. She looks confused, amused and a bit uncomfortable. When one of the children approaches her, she begins to laugh and says, "Have you seen how strange it is here? So strange!" The student looks at the teacher with a blank expression; he does not seem to understand what makes the space so strange. Then he asks the teacher to come with him. The teacher follows the child through the three rooms, looking around, while the boy presents the spaces for her.*

Page (2018) writes how the positions of teacher and learner are continually renegotiated in material and embodied pedagogy, making it possible to find new ways of making, teaching and learning. The positions of teacher and learner not only concern the human bodies but also how different materialities become the "teacher" when entangled with humans. Therefore, in the situation above, I find it not only intriguing how the child becomes the teacher for the adult but also how differently the child and the adult relate to the "teaching" material environment.

The adult seems confused and slightly uncomfortable in the museum educational setting. While I cannot exactly know what the teacher was thinking in the situation, I suggest that the *strangeness* might come from the material and embodied pedagogy (the artistic matter is on the floor and inside the cabinet, and the children are encouraged to explore the space with their whole bodies, unlike in a more traditional museum space). The setting does not comply with the expectations of the adult, and she seems to expect a similar reaction from the child. However, the space is not *strange* for the child, only for the adult, so the child begins to help the adult understand what is going on in the exhibition.

The material and embodied pedagogy seems to be more familiar to the child than to the adult. I suggest that children might be more open to entanglements with the material world than adults, exploring the world more with their senses and bodies than adults in general. The researcher Rautio (2013) makes similar remarks, using Bennett's (2010) concept of *aesthetic–affective openness*:

> Children, by virtue of their both biophysical and socially/culturally constructed existence, often seem to apply what Bennett (2010) describes as *aesthetic–affective openness* towards material surroundings: an attentiveness to and sensuous enchantment by non-human forces, an openness to be surprised and to grant agency to non-human entities (see also Harker 2005). (p. 395, original italics)

The museum educational setting can be an important site for learning, not only for children but also for adults who might not be as open to the teaching matter in general.

Conclusions

In the present text, I analysed four situations from the children's encounters with abstract art at the Children's Art Museum, studying them as material–relational situations. To my knowledge, museum educational situations with abstract art have not been studied before to the same extent from a new materialist perspective. This study contributes to the new but growing field of post-approaches in museum education, knowledge that has been called for in previous research (Hackett et al., 2018; MacRae et al., 2018). In the first situation, I argued that a paradoxical question asked by a child becomes an opening for intra-action and play, entangling the object and subject. In the second situation, artmaking appeared as an opportunity to break logical patterns. However, the breaking of patterns becomes a pattern as well, and while the abstractions made by the children are not created logically, an "intuitive-aesthetic order" takes place, something I wish to study further.

Human and non-human matter transformed into artistic matter when the children experiment in the space, bringing new understandings to light. The last situation showcases the "teaching matter" as agentive teacher and how differently children and adults might relate to it. It would be interesting to pay more attention to the experiences of adults, who might have a steeper learning curve with abstract art, in future studies. Embodied and material pedagogy with abstract art indicates how "making sense" in the world is not only done by verbal, logical and rational ways, but by engaging with bodies and senses, and most importantly, letting the matter teach, too.

Author biography

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Abstraction through the Kaleidoscope: Playful Concept Creation with Irma Salo Jæger

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Article is submitted to an academic, peer reviewed journal at time of submission

Abstract
The purpose of this article is to study the philosophical concept of abstraction based on a day spent with the Finnish-Norwegian artist Irma Salo Jæger. The concept creation, where we experiment with different understandings of abstraction, is informed by new materialist theory-practice and Deleuze and Guattari's (2009) philosophy of concept. Throughout the day spent with the artist at her studio, the concept of abstraction grows and becomes concrete in the stories, memories, paintings and books around us. Inspired by our concept creation, I argue that the concrete can be understood as the elements that create representational logic in abstraction: traditions, theories and mathematical patterns. The abstract of abstraction stems from the representation-breaking qualities: the sensitive and intuitive working progress and the agential and affective properties of the materials. Abstraction has both the abstract and concrete that constantly become each other. Representation is understood as a threshold rather than an impasse. The movement between the abstract and the concrete creates uncertainty, which can have educational potential. Playing (Harker 2005) enables the educational potential to unfold: it makes possible experimenting, balancing between the abstract and concrete and building a complex, kaleidoscopic understanding of the concept of abstraction.

Keywords
Abstraction, abstract art, Irma Salo Jæger, new materialisms, representation, concept, playing

Introduction

> Throughout the conversation today, the concept of abstraction has been gleaming in my mind. This concept has a rich content. But is it passive or active? Does abstraction have agency? Can it act? Or does it stay abstract? (Irma Salo Jæger while sitting at the restaurant)

I meet the Finnish-Norwegian artist Irma Salo Jæger (b.1928) on a July afternoon at Atelier Lilleborg, the renovated linseed oil factory in the Sagene neighbourhood of Oslo. She has painted under the grand roof windows for over 14 years. I am in the process of curating a pedagogically motivated exhibition about abstract art for the Children's Art Museum, a section dedicated for children inside Sørlandets Art Museum in Kristiansand, Norway. The exhibition will include two paintings from Salo Jæger.[1] As part of the process, I am investigating the philosophical concept of abstraction and its educational potential (see also Kukkonen 2022a). Prior to our meeting, I have read as much as I could find about Salo Jæger, but something is missing from the literature.[2] How does an artist who has worked with abstract art over six

[1] *Abstraction!* (Sørlandets Art Museum, September 4, 2020–January 24, 2021). The exhibition was funded by AKO Foundation. The exhibition at Sørlandet's Art Museum's website: https://www.skmu.no/utstillinger/abstraksjon/

[2] The 'core texts' about Salo Jæger and her art: Dæhlin (2002); Rajka (2006); Rød (1998); Røed (2014); Sjåstad (2016); Valjakka (2016); Ugelstad (2016).

decades understand the philosophical concept of abstraction? Throughout the day, we explore the concept at her studio, which provokes memories and stories related to Salo Jæger's art and artistry. In addition to the artist and myself, other agents influence the concept creation: paintings, books and artistic materials interrupt and guide the exploration.

Salo Jæger was born in Soini, Southern Ostrobothnia region in Finland, in 1928. After studying art history and aesthetics at the University of Helsinki and spending semesters abroad in Germany, Switzerland and Italy, Salo Jæger resided in Norway with her late husband Tycho Jæger in 1954. The painter held her first solo exhibition with abstract and figurative paintings at the Artist's Association in Oslo in 1962. Salo Jæger was recognised by Norwegian institutions from the beginning, but she has continued to be less represented in Norwegian art history when compared with Jakob Weidemann, Gunnar S. Gundersen and Inger Sitter, all of whom contributed to establishing abstract painting in Norway (Hansen and Ugelstad 2016; Sjåstad 2016).[3] When abstract art was finally accepted in the Norwegian artworld in the 1960s, most painters went either for the expressionist and intuitive approach like Weidemann or, for the more analytical and rational, like Gundersen. Salo Jæger, however, combined the intuitive and analytical, the abstract and the concrete, in her art (Sjåstad, 2016).

Our exploration of abstraction challenges conventional definitions of the concept. The word *abstract* has traditionally been used to describe a painting that is *abstracted*, taking its starting point in something representational. The painting is inspired by something that the artist has seen: a movement is reduced into a line or forest into geometrical patterns.[4] Nonfigurative and concrete, among other terms, are used to describe art that does not refer to anything but itself, that is, to its concrete and material reality, rejecting representation altogether. These definitions become difficult to follow when the focus moves from the artist's intentions to the experiential realm of the artwork. As I have observed in museum educational situations (Kukkonen forthcoming), a concrete painting can provoke associations in the spectator as much as an abstract work. Our explorations with Salo Jæger acknowledge the agency of the artworks and their experiential realm. Abstraction is constantly explored in relation to the concrete, which also challenges those understandings in which abstraction is understood as the universal and weightless dimension of ideal forms, such as in Plato's (1997) dualist philosophy (Arvidsson 2018). My approach is informed by new materialist theory-practice (Bolt 2010; Kontturi 2018; O'Sullivan 2001, 2006; Page 2018, 2020) and Deleuze and Guattari's flat one-world ontology (2020, 2009), which does not assume a hierarchy between the abstract and concrete. In addition, the concept creation opens reflections about abstraction's educational potential.

Focus of this article

In recent literature (Arvidsson 2018; Dickermann 2013; Fer 2000; Karmel 2020; Lind 2013; Linsley 2017), the concept of abstraction is explored as an artistic practice, as a form of art and as a historical idea. The concept is not regarded only as a word for abstract art but rather as a wider phenomenon in artistic, social, political and economic contexts. The authors mentioned above study abstraction from different perspectives, offering historical accounts of how the concept has been understood by different authors, artists and movements. For example, the art

[3] Hansen and Ugelstad (2016) note that Salo Jæger is not mentioned in Brun's article (1983) 'Maleriet 1940-1980' [Painting 1940-1980] in *Norges Kunsthistorie* or Brun's article (1989) 'Etterkrigstid' [The Post-War Period] in *Norges Malerkunst. Vårt eget århundre* [*Norwegian Painting. Our Century*]. In recent literature (Sjåstad, 2016; Valjakka, 2016), Salo Jæger's art is discussed more in relation to internationally recognised modernist artists such as Wassily Kandinsky, Paul Klee, Josef Albers and Serge Poliakoff.

[4] '"Abstraction" after all, comes from the Latin abstractus, a word meaning to pull or draw away from. It tends to suggest that abstraction is somehow a derivative or second-order kind of art, drawing away from something the artist has actually seen' (Varnedoe, 2006, p. 47).

historian and former chief curator of painting and sculpture of the Museum of Modern Art, Varnedoe (2006) focuses on post-war American art from a pragmatic and experiential perspective: 'What's the use of paintings or sculptures or prints or drawings that do not seem to show anything except themselves?' (23–24). The Canadian artist and writer Linsley (2017) studies abstract art in a global context, drawing in economics and the art market. The British art historian Fer (2000) writes about twentieth-century abstraction in relation to psychoanalytical theory and the problems of interpretation. The Swedish art historian and artist Arvidsson (2018) writes that contemporary abstraction is characterised by different materials, space, aesthetics and ideologies. Instead of looking for universalist or absolutist explanations of abstraction, artists and theorists today focus on abstraction emerging in immediate situations rather than ideal dimensions. Similarly, Varnedoe (2006) writes, 'It is tied to individual experience and individual sensibility, as they are given greater scope and play' (271).

My focus in the present paper is to understand the concept through the day spent with Salo Jæger at her studio. The concept becomes connected to Salo Jæger's art and artistry. Abstraction is created in concrete situations, and Salo Jæger's art and other materials guide the creation. Many references during the day to art history, philosophy, historical and present-day events form the concept and connect it also to wider contexts. As an art educator, my interest is in educational perspectives, which are brought up in the final discussion part.

In the first sections, I present my theoretical and methodological approach inspired by Deleuze and Guattari's philosophy (2009, 2020) and new materialisms (Bolt 2010; Kontturi 2018; O'Sullivan 2001, 2006; Page 2018, 2020). The first discussion part focuses on the *abstract* of abstraction, qualities in the concept that might be difficult to control, create surprises and break representational logic. The second discussion part explores the *concrete* of abstraction, elements in the concept that might create patterns, order and representational logic. In the last discussion part, I argue that the constant movement between abstract and concrete creates uncertainty, which can be educational potential. Playing (Harker, 2005) becomes a key element in the potential to unfold.

Creating concepts in a flat one-world ontology

Deleuze and Guattari's ontology can be described as 'flat one-world ontology' (Østern et al. 2021, 8). It escapes from stasis and fixed positions; contrary to being, the world happens in a constant becoming. The state of the world is like the root of a plant, a 'rhizome' (Deleuze and Guattari 2020, 11) where the roots are constantly creating new connections in all directions. Given that there is no linearity in the rhizome, the world is always in a process: 'A rhizome has no beginning or end; it is always in the middle, between things, interbeing, intermezzo' (26). Everything in the world is connected and relational without a hierarchy between the abstract and concrete (hence, *flat* one-world ontology). The world is immanent: there is no dualist outside dimension of *a priori* pure forms that would transcend into the material and embodied world (hence *one-world* ontology). The logic in the flat one-world ontology functions instead as an endlessly generating multiplicity of 'and ... and ... and' (p. 26) than a dualist either/or.

What happens to concepts in the flat one-world ontology? In *What is Philosophy?* (2009), the philosophers write, 'Concepts are not waiting for us ready-made, like heavenly bodies. There is no heaven for concepts. They must be invented, fabricated or rather created and would be nothing without their creator's signature' (5). Given that there is no dualist dimension in which concepts exist separate from the concrete world, concepts are always created. The concept is not only used as a theoretical tool but as a method that works like a springboard. At the start of our meeting with Salo Jæger, I brought up the concept of abstraction. We wonder about the concept throughout the day, which take us towards different ideas, associations and materials in her studio (and the other way around: the materials lead us to new

ideas about the concept). In this study, abstraction does not exist *only* on a theoretical level; I am specifically interested in how the concept *happens*—that is, how it becomes *concrete*.

New materialisms: A theory and a methodology

New materialisms recognise human and nonhuman matter (and, therefore, artworks as well) as agentive, constantly forming, changing and becoming (Coole and Frost 2010; Page 2018). In addition to Deleuze and Guattari's process philosophy and the flat one-world ontology, new materialisms are influenced by Marx' writings on material and embodied processes in capitalist systems, Heidegger's existential phenomenology and poststructuralist theorists such as Derrida and Kristeva. In addition, neuroscience, fashion studies and feminist theories have influenced new materialisms (Kontturi 2018). Given that the world is in constant movement, this approach focuses on the processual and material emergence of artworks. New materialisms acknowledge agential matter, moving away from the hegemony of language and human-centredness. The research approach asks not only how humans make and understand art, but also how art makes us (Hackett, Holmes, and Jones 2018).

According to the artist and theorist Bolt (2010), representational logic dominates and orders the world. Representation is formed of identification, opposition, analogy and resemblance (Deleuze 2021, 38–39). Representation can be understood as dogmatic thinking and patterns, canons and conventions. New materialisms encourage to look beyond the representational order, given that experimentation might offer '[...] something new instead of what is already known' (Kontturi 2018, 10). Instead of following a predetermined plan, the approach acknowledges cuts and disruptions in the process, escaping from fixed viewpoints (Kontturi 2018). Rather than holding tight to one's position and observing silently from the sidelines, one should move with the flow and pay close attention to the 'singularities of matter' (Kontturi 2018, 12). Prior to my meeting with Salo Jæger, I made some plans and prepared questions, but early on, I decided to let go of the controlled plan, to follow the various strands of ideas on the way and let the situations unfold by themselves.[5] We study the concept by discussing and challenging each other's understandings. The agential material around us interrupts and guides our investigations.

Beyond representational logic: Abstraction breaking patterns

> Come in the afternoon, when the light is the most optimistic. (Email from Irma Salo Jæger)

Irma Salo Jæger's studio is filled with the optimistic light of a July afternoon that she mentions in her email prior to our meeting. We are sitting in her studio at a large table covered with many books and piles of notes and papers. Her paintings are hanging and leaning on the white portable walls here and there around us. I tell her about my studies with the concept of abstraction, and I ask her a difficult question: Why did she start to paint abstract art? She looks very thoughtful, and I try hard not to disturb her thinking process.

[5] We spoke mostly in Finnish during the day, but sometimes, we switched to Norwegian and English when we were looking for the 'right' words. I recorded the conversations with a dictaphone. When we were sitting at the restaurant, I took notes by hand on paper to avoid recording nonconsenting persons' voices. In addition, I took photos of the artist, her studio and the artworks. We have continued our conversations with phone calls and emails. The artist received and signed a letter of consent. The project plan was approved by the Norwegian Council of Research Data before implementation.

She is quiet for a long time, taking her time to think about the question.[6] Then, she fills the silence by asking where our artistic ideas come from in the first place. 'That is a very difficult question. Are we just copying each other?' She begins to wonder how the traditional and classical artistic education she has taken has influenced her artistic decisions. 'All the traditional exercises with drawing and painting, such as figure drawing from live models, are still important today. These exercises create a foundation for all artistic forms of expression', she says. 'We learn to look at pictures and compose them; we learn to know what is significant. Then, these pictures compose *us*, and in the experience, we might judge the pictures. Are they good, are they bad or what?' Although abstraction seems to reject representation, it might still contain representational patterns, such as those traditions learned through education, given that abstraction is not born in a bubble. However, these patterns need not bound the painting; instead, abstraction emerges when they are combined anew. Something new is not absolute but processual; it comes into being when traditions, ideas and patterns move and merge in new ways.

'Why have we turned towards abstraction?' Salo Jæger wonders further and states, 'Kandinsky is naturally with us in the conversation today. Abstraction is spiritual, and all about senses and synesthesia'. In his widely influential *On the Spiritual of Art* (1946), first published in 1911, Kandinsky writes how art is born from the 'inner necessity' (55) of the artist. It is derived from three elements: the artist's own personality, the spirit of the age and from 'art as such' (55). Both tradition and freedom, exterior and interior influences, create the spiritual quality of art. When the artist creates a work of art born from this inner necessity, the abstractions of colours and forms create a vibration in the soul of the spectator. The work of art starts to act by itself, '[...] it possesses creative active forces' (91).

I can hear Kandinsky's influence when we get up from the table and Salo Jæger begins to show me the paintings around us. She talks about her art and artistry with synesthetic terms, where the senses mix into each other, and the paintings are their own active beings. The artist has taken many unfinished paintings up from her storage to daylight as a result of another project. She tells me that some of them have been there more than a decade, but the works do not speak to her. I point at pieces of geometrically cut paper on the floor, and Salo Jæger leads me to an unfinished painting to show me how they work (Figure 1). She carefully attaches a piece of paper to the canvas to see if it can work in the composition. I ask if it is her or the canvas that leads the painting process. She answers that it depends on the day: 'Sometimes I want to paint, and the painting is calling me, too. However, to finish a painting, the artwork needs to speak and come towards me'.

[6] Salo Jæger tells me later that she was thinking about her first encounters with abstract art. She describes the experience of seeing an abstract painting from Vasily Kandinsky in the *Klar Form* exhibition at Kunsthalle Helsinki in 1952 as a 'soul-stirring' encounter (she uses the Norwegian word *sjælsettende).*

Figure 1. Irma Salo Jæger shows me how she uses pieces of paper to test forms and colours on a work in process. Photo: Heidi Kukkonen © Heidi Kukkonen (2020)

Salo Jæger's artmaking seems like a highly intuitive and sensitive process, a collaboration between her and the materials. 'The artworks have their own agency and will. Materials play a significant part in the process. When I use different kinds of primers on the canvas, the painting starts to act by itself, without my knowing. When the painting dries, it might look different from what I expected. I take this agency as a positive gift'.

Then, she tells me that she is in a hurry to finish the paintings around us. 'It is already July, and soon, the sunlight will change'. Light has its agency as well, which is something out of her control. She leads me downstairs to see her library and the mural workshops, and the light around us grows darker. 'We need to live on the mercy of the light that makes our life possible on the only planet that we have'. In her artistry, light seems to be time because she prefers to paint in daylight. 'The light begins to disintegrate in July. Very soon, the sunlight will lose its character, and it will lose its face, becoming expressionless and blank. The autumn months are filled with hurry and urgency, with the disappearing light. In the last three months of the year, it is not wise to make final decisions or do finishing touches on a painting. In the middle of January, daylight starts to return, especially if there is snow. The light is at its best around Pentecost'.

At the same time as our meeting takes place, I am in the process of curating an exhibition about abstract art for the Children's Museum, a section inside Sørlandet Art Museum in Kristiansand, Norway. I have chosen two of Jæger's older works from the Tangen Collection[7] to the exhibition: *Breakthrough* (1965) and *The Wellspring Appears* (1961) (Figure 2). I ask her what she thinks about the paintings now, almost six decades later. She tells me that, although the working process with *The Wellspring Appears* was calm and gentle, *Breakthrough* was made in a hurry when the year had turned towards autumn and the light was about to disappear. When she was painting the large oil painting with shattered rectangular forms in red, orange, yellow, black and white, she was working alone at home. Her late husband, Tycho Jæger, had been travelling for his work in the United States.

Figure 2. *Breakthrough* (1965) and *The Wellspring Appears* (1961) at *Abstraction!* exhibition. Photo: Heidi Kukkonen © Heidi Kukkonen (2020)

Salo Jæger says that she had 'a terrible chaos going on' alone at home when she was trying to finish the *Breakthrough* for an exhibition at the Gallery Permanent inside the Artists' House in Oslo in 1965. Finally, the 145 cm high and 120 cm wide *Breakthrough* was attached violently on the roof of a car with still wet oil paint and transported to the artist's house. Salo Jæger laughs and shakes her head when she tells this story. Then, she gets serious again. 'I miss that particular work for its optimism and immediacy'.

[7] For more about the Tangen Collection, see Kunstsilo. (n.d.).

We come to her library, and the books around us provoke reflections about the historical background of the concept. Various books catch Salo Jæger's attention. 'Is abstraction an evolutionary thing, starting from impressionism?' She draws a large book from the shelf about Camille Pissarro (1830–1930), the Danish-French Impressionist, and notes that Pissarro was a teacher of Paul Cézanne (1839–1906), one of Salo Jæger's inspirations. Then, she mentions the German psychologists and philosophers and their importance to abstraction, but we cannot find the books from her library. Wilhelm Worringer (1881–1965) claimed in his widely influential dissertation *Abstraction and Empathy* (1997) (first published in 1908) that, although representational art satisfies our eyes, abstraction expresses insecurity and uncertainty. Psychologist Rudolf Arnheim (1904–2007) studied perception and art and emphasised the senses above language when understanding reality in *Visual Thinking*, first published in 1969. During the day, Salo Jæger also mentions the French philosopher Maurice Merleau-Ponty (1908–1961) numerous times, who emphasised the 'lived body' and 'embodied knowledge' when understanding the world (Merleau-Ponty 2012). Salo Jæger takes an old book carefully out of the shelve and places it on the table. The book is a catalogue about Nikki Saint DePhalle's (1930–2002) installation *SHE – A Cathedral* in Moderna Museet in Stockholm in 1966. Salo Jæger experienced the installation, where visitors could walk inside an enormous sculpture. 'Think how many different periods and events there are in human life, all these fantastic experiences. It must have been wonderful to be inside that installation. But the wars cut and erupt, and they never seem to quiet down'.

After we had talked about all the big names from Kandinsky to Cézanne, Salo Jæger shows me pages she has cut off from a magazine. They are slipped inside plastic and put on the floor of her studio. When we hunch our backs to look at them, she says that the images keep her spine healthy. The pages show pictures drawn by children; some play guitar, others play football, children in their activities. 'These images have a marvellous power I cannot explain', she says.

Through these stories, materials, artworks and events, abstraction appears as a pattern-breaking quality in life and art. Salo Jæger acknowledges materials and light as agents in the process of painting, and the paintings become their own active beings. Sometimes, the collaboration between the artist and artwork happens in perfect synergy, while, at other times, it involves a great deal of surprises. Abstraction cannot always be controlled or explained with conventional logic. During the day, Salo Jæger wonders how the 'instability' of modernism, such as the two world wars and climate crisis, has affected humankind and contributed to abstract art and abstraction. Abstraction is connected to action and urgency, events that create confusion and disorientation, shake our everyday lives and break the status quo. The human subject loses control in these situations with abstraction, which creates uncertainty.

As a museum educator and researcher of museum educational situations with abstract art (Kukkonen 2022a, 2022b, forthcoming), I have observed this representation-breaking quality many times in action when museum visitors experience abstract modernist art. When a group of schoolchildren look at an abstract painting, each student sees it differently, and the image transforms from nonfigurative to figurative (and back again) multiple times in the situation (Kukkonen forthcoming). This paradox—that an image represents nothing but, at the same time, many things—is a common question in the contemporary literature about abstract art (e.g., Fer 2000; Linsley 2017; Varnedoe 2006).

Concrete in abstraction: Numbers, patterns and the unambiguous

We are in the daylight of her studio. Salo Jæger gets an idea, and she begins to scroll through a thick book that lies on the table. 'Here it is, the number of Fibonacci. Arabic mathematics must be taken into consideration'. I get up from my chair and take a look at the book. I read from the pages that Leonardo da Pisa, called Fibonacci (1170–1250), was an Italian mathematician who

learned Indian and Arabian mathematics when travelling with his merchant father in North Africa. In the Fibonacci sequence, each number is the sum of its two preceding numbers. The sequence that bears his name has been used to compose aesthetically pleasing images, and it is connected to the rule of the golden ratio.[8] The book that she is scrolling through is a compendium that she assembled with her research assistant when working as a professor at the Norwegian National Academy of Fine Arts from 1986 to 1992. During her time at the Art Academy, she fought to get some organised theoretical knowledge into the curriculum (Ugelstad 2016).

Most of Salo Jæger's paintings are large in size. For the past 60 years, the artist has used canvases that follow the so-called 'French formats', with their three categories of canvases: figure, landscape and marine. She shows me a table chart from the French manufacturing company Sennelier, which produces art materials and pigments (Figure 3).[9] The length of the painting always has the same ratio as the width of the canvas. It seems like her mind is constantly occupied by numbers, which she frequently brings up in our conversations.[10] She wonders if beauty can be calculated by mathematics, and she tells me how her mother, educated as a tailor, taught her to think about proportions. Then, she pushes the wall on wheels around and shows me a large white-greyish collage where she has sewed painted particles together (Figure 4).

[8] Salo Jæger writes more about the Fibonacci sequence later in an email: 'Numerical relationships that occur this way in geometry appear as symmetrical and harmonious, aesthetical proportions'.

[9] Salo Jæger supposes that the French formats were founded during the Dutch Golden Age when Holland was producing an immense amount of art. The French Academy in Rome started to use the formats in the seventeenth century, hence the name 'French formats'.

[10] More about Salo Jæger's interest in mathematics, and its importance in her work: Røed (2014).

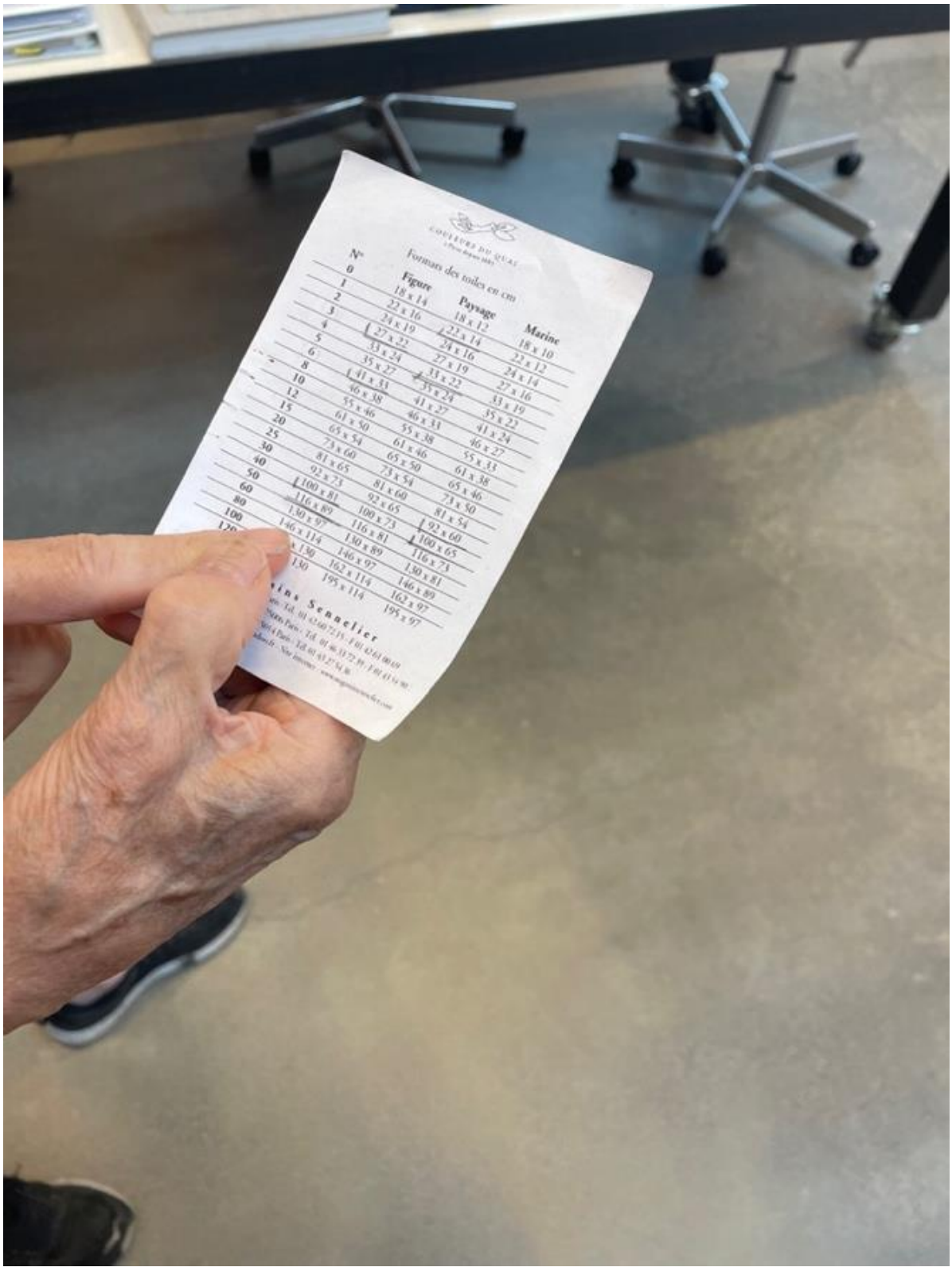

Figure 3. Salo Jæger shows me the table chart by Sennelier. Photo: Heidi Kukkonen © Heidi Kukkonen (2020)

Figure 4. Salo Jæger shows me her artworks at the studio. Photo: Heidi Kukkonen © Heidi Kukkonen (2020)

The artist suddenly remembers a moment from the days she was teaching at the Art Academy. She gets so excited that she starts to speak Norwegian, the language she has used daily since the 1950s. A student asked her how she would define the abstract picture. She answered to the student, 'Abstract painting is colours and forms within the law of frame. The frame is the first step, given that it defines the proportions that will appear on the picture plane'.

This definition reminds me of the concrete art movement, where the painting is stripped from all references to everyday reality and is constructed from its essentials, colour and form. It is characterised by geometrical, clear and closed forms and colour planes. Concrete art came to Norway after World War II from Sweden and France, and the international movement was influenced by Bauhaus, suprematism and neoplasticism in Europe. In 1952, the famous *Klar Form* exhibition with works from Le Corbusier, Richard Mortensen and Viktor Vasarely were displayed in Oslo (Gjessing 1998). Salo Jæger has also been inspired by the Bauhaus (Valjakka 2016).

I ask Salo Jæger what she thinks about concrete art. She gets an idea and starts to push the walls on wheels around, looking for a certain painting. 'Some of my paintings are concrete, and I would describe them as … unambiguous, while some others have a certain element of wonderment'. We are standing in front of a large painting with a cold red background. Warm yellow and light blue vertical forms are leaning against each other, and my eyes turn towards a hook-like black shape in the middle of the painting. 'The concrete paintings *happen fast*. Some others you can watch for decades, and they always give you something new to think about'. Then, she reminds us that, sometimes, the seemingly unambiguous can also become very complicated; perhaps, the painting we are looking at is not concrete after all. We begin to

wonder where the centre of the painting might be and how all the colours affect each other. 'There are actually all kinds of events in the painting', Salo Jæger wonders.

The word concrete has multiple meanings. In addition to movement in abstract art, concrete can mean physical and material things and events in the world. It can also refer to something that can be easily understood and grasped, something 'unambiguous', as Salo Jæger says. Inspired by the latter, the concrete can be understood as the representational level of abstraction: patterns, structure and order in art and life. Salo Jæger's use of traditional techniques, her extensive theoretical and art historical knowledge and the classical artistic education she has had all create a foundation for the abstraction to emerge. Similarly, her interest in numbers, geometry and mathematics can be considered something concrete: coherent, measurable and definable.[11]

The British artist Gillick (2013) suggests that abstraction is fundamentally impossible because abstract art is always concretised in the making of art. I do not agree with Gillick that abstraction would be impossible, given that I do not think there is absoluteness in the concept (see also Kukkonen 2022a). I make the case that abstraction contains both the concrete (structure and patterns and representational logic) and abstract (what might break the representational patterns). The abstract and concrete are constantly becoming each other, making representation a threshold rather than a dogma or an impasse. Abstract art is characterised by both chaos and order, even in the same oeuvre (Lind 2013). Varnedoe (2006) writes, 'Abstract art, while seeming insistently to reject and destroy representation, in fact steadily expands its possibilities' (40). The abstract and concrete are not opposites but different sides of the same coin. The seemingly unambiguous and concrete might suddenly act in surprising ways, as happened with the concrete painting at Salo Jæger's studio. The painting kept on moving and happening, giving us more to wonder about when we stood in front of it. On the other hand, a seemingly nonrepresentational painting can provoke representational responses. Varnedoe (2006) writes, 'Almost as fast as artists can open blank slates, others hasten to inscribe something on them, trivially at first [...] but eventually with more serious freights of meaning. Hence, the difficulty of enforcing the 'abstractness' of abstraction' (31).

Playing with uncertainty

Without noticing it ourselves, we have been standing on our feet for hours in her studio, library and mural workshops, and we need to rest our legs. The café has closed, so we sit down in the neighbouring restaurant. The place is crowded and echoing, but Salo Jæger does not seem to mind the hustle and bustle. She tells me that they sometimes have great colloquiums with the staff at Atelier Lilleborg. When they hold courses about mural techniques, conversations during lunch breaks are important. 'When you are with others, your thoughts are becoming and transforming. The purpose of us humans is to work with the whole of our bodies, and you need to think in many ways'. Thinking does not happen only on an abstract level, but through action with bodies and materialities in the world.

We turn back to the concept of abstraction. 'Abstraction seems to be a difficult concept. It is a concept that asks and demands', Salo Jæger proposes. 'Demands are very important in life. I have always been eager to make, to create and to act. But I need to watch out. My life is like a sewing machine ticking forward. Not because time is moving so fast but because I am working so much. But it is important to have things that urge you in action; those things keep you alive'.

Then, she thinks for a moment. 'Abstract art depends on our skills to be alive. Abstraction is how everything feels and how it is to sense things, to use senses'. She tries to

[11] Elsewhere, Salo Jæger has explained that the canvas is concrete and that colours need to find forms that collaborate with the canvas (Røed, 2014). When she paints, the mathematical relations of the French format she has chosen influence the work.

explain what sensing means, but she goes nowhere. ‘You cannot explain senses with words because you only feel them’, she says.

We start to wonder in what language the concept of abstraction might be easiest to understand. In our conversation, we have mostly spoken in Finnish, but we are constantly struggling to find the right words. Sometimes, we end up at dead ends, and here and there, we change the language. Salo Jæger switches into Norwegian and says that, perhaps, the concept is impossible to grasp or understand. ‘An incomprehensible concept! *[Ubegripelig begrep!]*’ This idea reminds me of Jacques Derrida’s *aporias* (1993) in his linguistic model, a concept I have earlier studied in my master’s thesis (2017) and in relation to abstraction (Kukkonen 2022a). Some concepts have a paradoxical structure that cannot be resolved. These concepts are undefinable and undecidable. Does abstraction exist at all if you cannot define it? If you cannot explain it with words, is it a concept at all?

Salo Jæger seems very enthusiastic about the idea of the impossible abstraction, but she does not accept it as an answer. ‘Reality is not only made of words. Senses are also reality’, she concludes. ‘My responsibility as a human is to paint, and paintings’ task is to nurture the senses. Without senses, we do not feel well, and nothing matters or means anything’. In these thoughts, abstraction becomes all the more connected to the concrete (in the sense that the concrete signifies material and embodied aspects of the world). It moves away from the conventional idea of abstraction as the universal dimension of ideal forms, as in Plato’s (1997) dualist ontology. Concepts do not exist only on a theoretical level; they are also ‘sensibilia’ (Deleuze and Guattari 2009, 5). There is no hierarchy between abstract and concrete, but the two are constantly becoming one another.

When we are moved to another table in the crowded space and the waiter brings us desserts as an apology, Salo Jæger does not seem to mind. She moves with the situation, and she does not seem to get stressed or annoyed by change and challenge. When her purse drops on the floor, she picks it up before I have time to react. She seems curious about the changing and rather crowded and noisy atmosphere of the restaurant. The changing nature, the wars in the past and the unstable times we are living now enter our discussion again. ‘We need to live with the change, using the knowledge we have acquired throughout the history of humans’, she says.

I argue, inspired by our concept creation, that abstraction is connected to uncertainty and change (see also Kukkonen 2022a, Kukkonen forthcoming). Abstract modernist art can be a direct encounter with uncertainty—an image without definite figures or fixed answers. ‘[...] nonfigurative modernist painting does not have a similar visual narrative like its predecessors before the 20th century’ (Kukkonen 2022a, 323). This ambiguity and pattern-breaking quality can be found in many kinds, if not all, of art in various degrees, not only in modernist painting. It has been suggested that abstraction has always existed in art (Bello et al. 2020).

I propose that abstraction is the uncertain quality in many, if not all, kinds of art. Abstraction is born when representational logic—traditions, patterns and what is already known—is composed in new ways. The patterns are broken and remoulded, so the breaking of patterns paradoxically becomes a pattern. Abstraction is that which diverges from the road, opens rather than closes, touches senses and might escape words and conventional logic. The constant movement of the abstract and concrete makes it slip from our fingers when we are about to catch it.

In my previous studies, I have observed how abstract art and its rejection of fixed answers can provoke frustrated and even angry responses (Kukkonen 2022a, forthcoming). The image cannot always be controlled by its viewer or put into rational explanation. The ‘difficulty’ of abstract art has been discussed by many authors in the contemporary literature (Arvidsson 2018; Varnedoe 2006; Linsley 2017). According to Arvidsson (2018), debates about abstract modernist art and its relevance have been going on since at least the nineteenth century. As I

have argued elsewhere (Kukkonen 2022a, forthcoming), the uncertainty in abstraction can have educational potential, both when encountered in paintings and when the concept is used as an educational approach by purposely creating situations in which representational logic is challenged. Abstract art is a safe opportunity to encounter uncertainty, which can build our tolerance towards uncertainty in everyday life (Kukkonen 2022a). It can help reject tunnel vision and binary thinking (Kukkonen forthcoming). Instead of a fixed viewpoint, abstraction can help to build a kaleidoscopic understanding of the world. I argue that a key aspect of the educational potential of abstraction is the element of play.[12] Salo Jæger has an experimental, curious, playful and unhierarchical attitude towards art and life[13], skills that can be very beneficial when we need to live with change and uncertainty.

The researcher Harker (2005) has studied playing as something that happens between being and becoming, as inspired by Deleuze and Guattari's (2020, 2009) philosophy. Harker argues that playing is not only something that children do, but also an activity that concerns all ages. According to Harker, playing contains embodiment and affects (Connolly 2002; Massumi 2002), intensities between matter and bodies that cannot always be articulated in words. Although playing can be emancipatory, it can also contain controlling patterns that create familiarity and stasis. Playing can also be serious: '[...] playing isn't always fun and games' (Harker 2005, 48). I argue that the concept creation with Salo Jæger at her studio was playful in Harker's sense of the word: the concept was in becoming throughout the day, creating an open-ended exploration where we experimented with multiple definitions and ideas. The concept became entangled with materials such as artworks and books, and we could not always explain the understandings with words. Although abstraction did function as an emancipatory opening, the concept creation was not anything goes but intuitively constructed. Playing made it possible to create a kaleidoscopic understanding of the concept.

Conclusion

I have studied the philosophical concept of abstraction in this text, based on the day spent with Irma Salo Jæger. The present paper contributes to the discourse on Salo Jæger's art and artistry (Dæhlin 2002; Rajka 2006; Rød 1998; Røed 2014; Sjåstad 2016; Ugelstad 2016; Valjakka 2016;), knowledge that has been called out previously (Hansen and Ugelstad 2016; Sjåstad 2016). This concept creation is also a contribution to the literature on the concept of abstraction in the context of abstract art (e.g., Arvidsson 2018; Dickermann 2013; Karmel 2020; Lind 2013; Linsley 2017). To the best of my knowledge, the philosophical concept of abstraction has not been studied before with a new materialist theory-practice in the context of Salo Jæger's work. In addition, I have discussed abstraction's educational potential and the importance of play (Harker 2005) as part of its unfolding.

The concept creation challenged conventional understandings of abstraction, where the abstract and concrete are considered opposites or where abstraction is regarded as a universal dimension of ideal forms. Abstraction did not stay abstract—it became concrete in the many stories, references, artworks and other agential materials around us. I have used multiple meanings in the text about the word concrete. In our concept creation, it has referred to material and physical matter in the world, a movement in nonfigurative art in art history and to 'unambiguous' things in the world, such as an artwork that 'happens fast', as Salo Jæger describes it. I have further analysed concrete as representational logic in abstraction, which can function as a threshold rather than dogma. Based on the concept creation with Salo Jæger, the

[12] I have previously studied the aspect of play with Anne Elmies-Vestergren in the context of digital media and education (Elmies-Vestergren and Kukkonen forthcoming).

[13] Salo Jæger's playfulness and openness is noted by many other authors (Dæhlin 2002; Ugelstad 2016; Valjakka 2016). Salo Jæger has been inspired by the Canadian media theorist Marshall McLuhan (2013) and his ideas about the 'homo ludens', 'the playful human' (Ugelstad 2016, 33).

use of traditional techniques, theoretical and art historical knowledge, classical artistic education and mathematics can be understood as something concrete, that is, creating representational patterns, in abstraction. In the process of making abstract art, and in encounters with abstraction, the patterns are interrupted and combined anew. The breaking of representational logic happens not only by human subjects, but also by agential materials. Abstraction creates affects, sensory experiences and surprising associations, which cannot always be explained by words or conventional logic.

The abstract and concrete are continuously becoming each other, which creates uncertainty. In the present paper, based on the concept creation with Salo Jæger, I have argued that playing (Harker 2005) is an important approach when encountering uncertainty. Playing enables the educational potential to unfold, where the lack of fixed answers becomes the possibility of a multiplicity of understandings. The artist has a playful and unhierarchical attitude towards art and life, making it possible to balance with the abstract and concrete. Playing enabled us to experiment and explore abstraction from many perspectives, hindering us from jumping into hasty conclusions.

Salo Jæger's playfulness does not mean that she would not take art or life seriously. It means curiously looking at the other side, even if it is difficult, time-consuming and challenging. Her optimism is not naivety or ignorance but patience and wisdom of seeing potential in the multiplicity of things, building a kaleidoscopic view. The playful, open and un-hierarchical attitude makes it possible to listen not only to one's own wishes, but also to the materials. Lines between the artist and artistic matter might sometimes blend into each other. As Salo Jæger said at her studio, 'When you work with traditional methods, it takes a lot of time. It won't become anything if you try to do things too fast. The working process is very complicated. All the different pieces need to be put together. […] Then, I ask myself if I am satisfied with the result. Me and the painting, we are the same. I need to accept that I am like that'.

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