Who Are You And Who Am I?
An Autoethnographic Study on How Mirror Neurons Guide the Artwork in a Collaborating Art Project

Margaretha Häggström[1], Malena Walin[2], Charlotta Gavelin[3]

[1]*University of Gothenburg, Faculty of Education, ORCID: https://orcid.org/0000-0001-9744-6532*
[2]*University of Gothenburg, Academy of Art and Design*
[3]*University of Gothenburg, Academy of Art and Design*

Abstract: *This is an analytic autoethnographic study revealing the journey of three scholars/art-teachers educators/artists, working at the University of Gothenburg, exploring the impact and implication of mirror-neurons while making common and mixed self-portraits. Our experiences of this art-making are expressed through chronologically ordered narrative vignettes. In order to connect the experiences with theoretical significance these vignettes were critically reflected upon. We found that the aesthetic responses evoked by the collaborative artwork are complex, including reactions on the artwork's content, execution and performance. Result shows that we are able to recognize the emotional state of the depicted other, identify with the portrait and change one's mood. We suggest that it is likely that mirror neurons activates when we meet the other in a picture.*

Keywords: *Auto-ethnography; art-based research, mirror-neurons, theory of mind, the other.*

I.   Introduction

Throughout the ages, artists have painted self-portraits as an attempt to identify themselves. Who am I and who am I when I am joining a certain group of people? Likewise, in school education, self-portrait creation has been a traditional standard assignment. Correct proportions, realistic drawings and objectivity were the aim striving for. However, today self-portrait is used to expressing oneself in a more subjective and creative way. Mirroring oneself, the student is empowered to observe and scrutinize the notion of self in an unbiased way in contrast to the critical self-image of everyday life. Apart from learning the human anatomy and how to use pictorial techniques, students develop their self-awareness and knowledge of identity and may thus be able to express an alternative image of self.

To develop the social self-concept, we need experiences of encountering *the other* (Hall, 1997). Within psychoanalysis, according to Hall, the idea of the other is essential to the constitution of the self as a subject; we create meaning through dialogue with the other. We rely on each other's perceptions and appraisals to enhance our social self; we define ourselves in the eye of the other (Aure, 2011), as if we are looking in a mirror. Thereby we might be able to feel the emotional state of the other; to feel oneness. Synchronously, the capability to identify emotional expressions intimately connects to the visceral image of our own facial expressions (Hang Lee & Tottenham, 2011; Nummenmaa et al, 2008; Niendenthal, 2007). Consequently, mutual facial feedback serves as a bidirectional contagion which helps us to construe expressions and consolidate emotions in the spectator as well as in *the other*.

Imitating is an indication of social behavior; it is what human beings do, from infancy to senescence (Yarbrough, 2017). Tuning our moods and movements is a way of expressing that we like a situation and the other person. Historically, human have used mirroring as a type of universal signal, and it have even been a way of surviving, Yarbrough maintains. Mirroring was learnt as a socially accepted behavior. Now it is seen as an innate inclination of expressiveness, yet depending on factors such as culture, education, personality and gender (ibid).

Imitating is also a powerful way of learning (Byrne, 2005). Byrne makes a distinction between social mirroring and learning by coping, describing the former as less cognitive challenging as it does not require anything new to be learnt, whilst the latter entail complex cognitive skills as we have to decode the behavior of the one we imitate (ibid).We find imitating in both these ways of interest regarding art education. This paper explores how art-making through social mirroring reveals the importance of empathy in order to represent the mental states of others. This is examined in experimental manners by the three authors, making mixed portraits of ourselves. The

images are created in three phases including sketching, watercolor painting and individual choices of medium. This implies that each of the three images is portraits of three individuals in one.

The paper first introduces notions of the interconnection of artwork and research and then outlines the role of mirror neurons and examines its role in empathy and imitation, drawing upon *the theory of mind* (Apperly, 2011; Slaughter & de Rosnay, 2017) and the concept of *mirror-neuron* (Iacoboni, 2008; Ferrari & Rizzolatti, 2015). The next part exemplifies how mirroring reproduces facial expressions, moods, emotions and intentions. This is illustrated by autoethnographic vignettes and three pieces of artwork. The paper concludes by discussing art-making in school and the learning process of imitation, arguing that copying each other's work is to reflect oneself in other individuals and to socially interact with one another.

II. Artwork and research

Art-based research efforts to move "beyond the limiting constraints of discursive communication in order to express meanings that otherwise would be ineffable", Barone and Eisner (2012, p. 2) claim. They also argue that the most essential role of art-based research is the heuristic through which we can deepen and make our understanding of some aspects of the world more complex. That is to engender awareness into states of affairs rather than generate claims about facts (ibid). At its deepest level, art-based research is an artistic approach that addresses social issues. Undeniably, there is a breadth of scholars within a variety of academic disciplines that use art in research, proclaiming the power of the arts for increasing the research of social science (Leavy, 2015, 2018; Knowles & Cole, 2008; McNiff, 1998; Rolling Haywood Jr, 2013). Some of the conclusions these scholars make are that art and science share inherent resemblances in their efforts to explore, discover, elucidate and represent aspects of human life and socialization (Leavy, 2015). Art is used in order to direct social research questions in holistic and committed methods in which theory and practice are entangled.

Borgdorff (2018) is addressing the role of artistic research in academia and pays attention to the *equality* of artistic research and other kinds of academic research, claiming that artistic research is not equivalent. The reason for that is that we should not exclude artistic research from academia, nevertheless, we should not put research in different fields on a parallel since that per se creates an opposition, Borgdorff argues. Consequently, if doing so, a division is established, confirming that artistic research is not proper or genuine academic research. The up-shot of this reasoning might be that artistic research is diminished and appointed as *the other* (Häggström, 2014), meaning different, deviant and alien instead of innovative, inclusive and pioneering. The concept of equivalence is problematic, Borgdorff proceeds, because it submits an implicit hierarchy. However, Borgdorff highlights that *practice* is central in artistic research and permeates all levels of the research. A crucial role of artistic research is the embodied forms of understanding, i.e. forms of understanding that will not simply be transformed into written or verbal language. Since artistic research are conducted in and through practice, artistic researchers use a wide variety of research methods originating from humanities, social science, natural science and technological research that may include ethnographic research methods, various interview technics and surveys, as well as hermeneutic ways of investigation or even laboratory inspired experiments. Borgdorff emphasise the pluralistic approach in artistic research. He also underline that the major outcome of artistic research is art, although to be efficaciously distributed further work has to be added in order to articulate the research and to demonstrate how new insights has involved a process of exploration and analysis. In this study an essential outcome is three paintings. With the intention of articulate the process we have added written and verbal representations as additional methods in the process of exploration.

MacDonald (2012) uses *painting as research* as a metaphor and tool to combine autoethnography with art in her doctoral study. She then identified the synergy effects of artwork, research and identity by elucidating both the unique and related strategies characteristics of creativity/art-making, research and teaching. According to MacDonald the process of art-making can provide a multitude of potentials for "exploring new ways of thinking, imagining, communicating and making meaning for those in the process of negotiating artist and teacher identities" (ibid, p. 1).

Our study is what Borgdorff (2012) phrase a practice-infused research. That means that 1) understanding sought in the study is embedded in our artworks, 2) our research methods are permeated by the practice work, i.e. the research is conducted *in* and *through* artistic practice, and 3) the result is practice by providing actual artwork. This article is an attempt to advocate and disseminate an encouraging understanding of reasoning in and through art, i.e. artistic research within academia. Moreover, we specifically view this text to be of interest for teacher educators who uses art as a didactic tool for any learning processes.

III. Theory of mind and mirror neurons

The issue and analysis of how human can understand their own as well as others' minds have been of interest in philosophy for a long period of time (Wellman, 2018). Wellman started his research in the field of metacognition, looking at what children think about the mind in general terms, not only focusing on memory and learning processes. Currently research on theory of mind includes all ages and a wider focus on progressions of understanding.

The ability of feeling empathy with others is vital to the human community. Jeffers (2015) claims that the art class-room offers an exclusive environment for developing such ability. One reason for that is that art education provides an opportunity to both emotional and cognitive engagement including embodied reaction. Embodied learning integrates dimensions of self (Hubard, 2007).

Theory of mind refers to a person's ability to represent the mental state of others (Apperly, 2011; Slaughter & de Rosnay, 2017; Schneider, Slaughter & Dux, 2017). The hypothesis is that it exist two types of theory of mind systems: one automatic system which is early developing, purposive and implicit, and one flexible system which is later developing, slower and explicit (Slaughter & Dux, 2017). The automatic system is defined as unintentional, unconscious and uncontrollable.

For a long period, philosophers contemplated and pondered over our capability to understand each other (Iacoboni, 2008); how does it work? How can we understand what others mean, think and feel? Scientists of psychology, cognition and neuroscience have been working on this conundrum for more than hundred years. Now, this enigma is explained as an effect of mirror neurons; special cells in the brain which help us to connect with one another emotionally and mentally (ibid). The mirror neurons re-create emotions we observe in others so that we can identify feelings and even feel the same feeling. Most of us recognize this from watching a movie, or looking at someone suffering or getting hurt. We cry, laugh and exclaim with the other person even though we do not always know the background to the emotional state of the other. By watching these emotions, we simply share them. Iacoboni (ibid) explicates that when we recognize other people's actions, mirror neurons assist us so that we can understand the motives behind the actions, i.e. others' intentions[1]. Based on the findings of mirror neurons we can assume that when we look at another individual, a multitude of neuronal activities embarks and a network of neurons are activated accurate as if we were doing the same activity ourselves (Piechowski-Jozwiak, Boller & Bogousslavsky, 2017). By looking at the other's facial expression, this network is activated just as we were experiencing the same thing as her or him.

Freedberg and Gallese (2007) anticipate that we also bodily respond to art, both artistic performance (in action) and fixed artwork such as images and the like. That means that imitating actions and emotions constitutes the rudimentary structure of aesthetic response to art. They suggest that empathic response to art is based on the interaction of two factors. One is the relation between the embodied imitation- activated empathetic feelings in the individual that experience an artwork and the content of the work. The other one is the relation between those empathetic feelings and the technique of the artwork. This indicates that we in this study might respond to the facial expressions of one another as well as to both the content in the emerging images we are creating, and to the technics used.

IV.   Methodology and empirical data

This paper is based on an autoethnographic study, drawing on the work of Anderson (2006) and referred as *analytic* autoethnography. This approach intends to expand and enhance research within the ethnographic tradition as well as the "evocative autoethnography" which is based on postmodern receptivity. Analytic autoethnography reflect five principal aspects of research in which the researcher is: "(1) a full member in the research group or setting, (2) visible as such a member in published texts, and (3) committed to developing theoretical understandings of broader social phenomena (ibid, p. 373) and includes 4) narrative visibility of the researcher's self and 5) dialogue with informants beyond the self (p. 378). By these five features of analytic autoethnography Anderson promotes an analytic reflexivity which expresses the researcher's awareness of her or his inevitable connection to the research context, including the researcher's effects on it. This reflexivity also pinpoints the reciprocal influence between the researcher, the setting and the informants. In this study this implies that we are already familiar with the setting, as we are art teachers and have artistic backgrounds. We are the informants ourselves as well as being the researchers, which puts us in a specific position. In this respect, the theoretical approach of mirror neurons used here, underpins the notion of reciprocal influence.

Autoethnography have in recent times been taking into consideration as a research method within performing arts (Pace, 2014). This has to do with its opportunity for artists and others to critically reflect on their experiences, personal as well as professional. In this article we reflexively explore individual experiences of making visual art together and how this alignment interacts with the ideas of theory of mind and mirror neurons. This is a way to achieve a wider understanding of collaborating artwork and by extension a social understanding of cooperating capacity and effect. Scott-Hoy, (2002) points out that audio-visual or performative component in

---

[1] Observing action in others activates the same neural networks of the observer (Piechowski-Jozwiak et al, 2017). "The discovery of mirror neurons and fronto-parietal reciprocal connections is that it demonstrates how the visual stimulus triggers primary motor pathways directly rather than relating to visual associative areas" (ibid, p. 3).

autoethnographers academic representations is still quite rare. This article is an attempt to provide such an example.

V. The setting

This study takes place in the context of teacher education with art as both the principal content and as a main pedagogical tool for learning language, emphasizing the communicative aspects of language, thus a multimodal perspective on language and literacy[2]. Author two and three work at the Faculty of Art, whilst author one work at the Faculty of Pedagogy. In this exploratory study we unite not primarily as teachers but as artists, to explore the notion of mirror neurons through a common artwork project. The setting for this artwork was planned in a quite detailed order, albeit with space for free interpretation of how to compose a portrait image. The artwork was divided into three initial main parts consisted of 1) a quick sketched self-portrait in charcoal, one each, which formed the basis of the image, 2) use water colour or similar and 3) use any optional medium. The material was chosen for various reasons: firstly due to its simplicity, that is we knew we already had the material at the university, it is cheap and easy to use. Secondly, we assumed it would be better to use analogue methods when mirroring. The reason for that is based on the relative longer time for making sketches and paintings instead of taking photographs but probably faster than making sculptures. We believed that looking at each other while drawing and painting would be beneficial according to theory of mind and mirror neurons. Thirdly, we also assumed this could work in school and university.

The three outlined stages were conducted in a certain way: after the first sketch we passed on the sketch to the next person who in turn continued by sketching her own self-portrait on the first one, hence all three individuals were portrayed as one. This procedure was then changed from making self-portraits to make portraits of each other, still using the same painting, repeated after every new phase. In order to do so, we were standing opposite of each other and observed one another, mirroring ourselves in the face of the other. After the three different stages each of us finished the image one started, in any chosen suitable and desirable way with no restrictions. This resulted in three different artworks made by all of us, each with prime responsibility of one piece. The next step was to develop one individual piece of artwork in whatever medium we would prefer and then take the images into the digital sphere, using first photograph and then data animation. This article concerns all these three steps.

VI. Empirical data production and aim

This article explores a methodology of autoethnography in order to connect the experiences of us as researchers to the experiences of art making and in relation to the theory of mind. This investigative approach includes asides from the artwork, three individual log books, three participating audio recorded conversations, photographs showing the different stages of the artwork and video recordings from three different spatial perspectives showing the actual work. In addition, this study seeks to explore the notion of mirror-neurons in regard to self-portrait making. Descriptions from these empirical data such as photos of different stages of the artwork, selections of notes from log books, statements from the recorded conversations and expressions from the visual recordings are in this article interweaved with the theoretical point of departure throughout the text and images. In this sense, our study is an attempt to coalesce an artistic process with established research principles.

The overall aim with this study is to explore how art-making through mirroring and through making mixed portrait images expose and represent - or not – the mental states of others.

This artwork is analyzed through the lenses of theory of mind. The interpretation procedure was structured through a communication process and is inspired by thematic analysis of narratives that "focus on telling your story, then frame it with an analysis of literature, and concentrate on raising questions about that literature or about accepted theoretical notions, or on generating new ideas" (Ellis, 2004, p. 198).

VII. Result

---

[2] A multimodal perspective on literacy stresses that different modes, such as visual art, music, dance, written and oral texts and body language are combined within communication (Kress & van Leeuwen, 2001). According to Kress and van Leeuwen communication is always multimodal. Jewitt (2008) highlights that class-room pedagogy have to be view as multimodal, including multifaceted communication repertoire as e.g. interactive digital boards, computers and various functions within digital applications. This also implies that communication of today is more interactive, non-linear and visual (Hassett & Curwood, 2009).

This section includes vignettes from the artwork process along with images of the different phases. These vignettes have provided our personal opportunities to explore our experiences of the activity of creating portraits in such a specific manners. Each vignette have been written by one author in private, and then been discussed and interpreted together. This entails two perspectives: one intrapersonal and one inter-personal. As we have worked closely together, these perspectives are also solidly interrelated through participatory belonging while creating portraits and then disconnected through distancing while writing about our experiences, and again interconnected through a joint interpretation of the images, the video-recordings and the log-books.

Vignette One, Margaretha
1a) Portrait – the start

I realize that I have a sense of melancholy when I start to sketch. It's probably due to my mother's situation which makes me aware of the finite dimension of life; there is only one direction and I too am moving towards the end. I really don't need any replenishment of that kind of feeling, but strange enough is it amplifying whilst I'm sketching my self-portrait. Still, it felt good and fun to draw. Maybe it has a therapeutic meaning – which I do not usually sense when I paint, perhaps when I write poems, as I did before.

1b) Changing places

I move to Malena's sketch, Malena to Charlotta's and Charlotta to mine. We are now making a self-portrait within each other's sketches. I felt quite soon that my attitude of mind changed when I mirrored myself in the portrait of Malena. She is in a completely different place in life than me; not vulnerable at the moment, I think. Happy. On the move. A lot is going on in her life right now, and I remark that I embrace that feeling and I can feel her energy and drive. Really strange! But cool! Again, I realise the power of creating, and how emotions and moods can shift and be reinforced at the same time. I am trying to establish a sense of exhilaration in the picture.

1c) Changing places again

The last switch for the black-and-white technics (graphite and charcoal) and I'm now sketching on the one that Charlotta started and Malena continued with. I can actually see both of them in this portrait. Yet, I can easily carry on making the portrait to look like me. It feels easy and fun. I'm trying to strengthen the connection to nature and trees in the background, and there is a strong existential feeling in this picture, seriousness. I feel humble and I realise that humans are alike; that is to be human in this world.

Image 1: This image shows the three steps and how the portrait change, after each contribution, moving from displaying one person in the first image, two persons in the second and all three persons in the last image.

Reflection on vignette one

This vignette illustrates how we proceeded in a step-by-step approach, moving from one picture to another. It seems like Margaretha's way of tackling the task was quite direct and that she was aware of her

feelings that came along with the creating. This event is obviously an emotional as well as cognitive involvement and, as Jeffers (2015) points out, an embodied reaction. What we found interesting when we analysed our log-books and this vignette was that we approached the three sketches in different ways. Margaretha is rather explicit here about that change – from being in a sad mood to enter a happy land and finally arrive at a place of recognition where she feels at ease, at home and part of a unity. She is moving from the single self-portrait to encountering the other's portraits and when she feels the emotional state of them, she feels oneness. This seems to emerge in the third step, when the portrait already is composed of both the other participants. This embodied activity surely includes dimensions of self, as Hubard (2007) claims that art education does, in several ways: mirroring oneself in the portrait of the other, finding oneself in that portrait and create oneself by adding elements of self. When looking at the sequence from the above vignette we reflected on the project as such and the fact that we actually worked on each other's artwork.

The sketches shows how each of us have tried to add one's own personality and characteristics into the three portraits.

Vignette Two, Malena
2 a) Reflecting before coloring

In my teacher profession and in my personal being as a human being, there is happiness in getting myself to work through aesthetic and creative processes. But there is also a resistance. A self-insight and awareness of the lack of practice and maintenance of knowledge. At the same time, I am markedly fulfilled by energy and expectation, commitment and excitement. This by feeling different things at the same time…

2b) The water colour phase

The color really changes the portrait into something new and something else! An extra dimension to the image. I have repeatedly stated today that my style is more cautious than my friends are, and again I see a certain diverseness in our approaches. Transparent and restrained does not seem to have been the motif of Charlotta and Margaretha, so to speak.

I think of presence. That we face the last vignette together looking at the same thing, but seeing different things. One has looked at the content and another on the composition. It is interesting to see how we use and overthrow the roles of leaders. When I came to the last portrait, which is my colleague Margaretha's original portrait, it feels so full and saturated. I feel some conciliation that not experiencing myself have much potential for influence anymore.

2c) After the creative work

Interesting at this point is that we all seem to share some kind of "whow-experience". I find that we are a little surprised, affected and pleased about the process being so rewarding and that the results seem so interesting. We discuss that it looks like it is the same girl portrayed in the three pictures, a kind of strange hybrid of us three, which requires something from the viewer, if she or he are to be able to see the three of us in the portrait. A recognition or perhaps a closer connection to us.

Image 2: This image shows the first colouring phase in the three images.

Reflection on vignette two

This vignette shows how Malena reflects on the creative work as imbedded imitating actions, and how she responds, intellectually by comparing herself with the others' ways of using colour and use paint. This is in line with what Freedberg and Gallese (2007) anticipate how we respond to art: the links between embodied empathetic feelings and the content of an image and that the links between these feelings and the technique of the painting creates the basic aesthetic reactions to art. Malena responds not only to the facial expressions, but also to the different emerging content of the images, as well as to the technics used. As Piechowski-Jozwiak, Boller and Bogousslavsky (2017) point out, both art production and art response activates multisensory emotions and understanding, which is evident in this vignette; Malena reflects on the process of creativity and the mixed emotions creative work evokes. She seems to have ambivalent feelings when she reflect on the watercolour phase, being both joyful and a bit puzzled. Following Hall (1997), this can be interpreted as a struggle with the social self-concept when encountering the colleagues through the aesthetic work: who am I in this context and in this specific group?

Vignette Three, Charlotta:

3a) Continuing work at my studio

Wow oh help, what have I done! Just coated our hard-working common portrait with a dark green photographic emulsion. What if the chemistry was old?! Don't think so, though it was unusually dark .. what will happen? I've never coated a watercolor painting with light sensitive chemistry before.

Watercolor can be washed away but a cyanotype that gets chemically blue ... should I've tested on something unimportant first? However, it had not been that exciting; it would have created an expectation of a result in a specific direction.

Perhaps something completely different will happen, something I did not predict, probably it will do that. I guess I will panic when the picture becomes visible in the bathtub, during the development. At worst, I can add chlorine, it has saved me before.

3b) After the process

Okay, now it's done. Don't know what to think, it's not a total disaster.
A few days have passed by and the picture has matured mentally, I've become accustomed to seeing the new portrait that is in front of me and now I dare to move on.

The portrait has become more of me again, the others have faded away a bit but I still want to preserve some details, the bird is important, it was not my work from the beginning but now it needs to remain. Next, pencil, water and then digitize. The last thing is Photoshop, there are infinitely many ways to go, it gets harder when suddenly everything is possible. The portrait will probably never be finished.

Image 3: This image shows two of the images after the joint procedure. They became personalized without the opportunity or limitation of mirroring.

Reflection on vignette three

This vignette demonstrates how the process is veering from the joint procedure to an individual practice. Charlotta is now concentrating on the technique and the progression of her image. Freedberg and Gallese (2007) point out that the relation between the technique used and the feelings toward the artwork links strongly to the imitating actions and the body. Charlotta's emotional reactions are examples of such bodily responses. Both the content of the image and the technique are crucial to her in her reflections. As she is exploring her methods, her learning process is embodied and includes, according to Hubard (2007), levels of self. For example, how Charlotta identifies herself as an artist, as part of the group of the three and as an individual person. It seems that she is ambivalent regarding this identification when she expresses that the portrait now has become more of her again at the same time as she wants to keep some of the common expressions. This might be due to the two different theory of mind systems (Apperly, 2011; Slaughter & de Rosnay, 2017), i.e. both implicit and explicit, unintentional and intentional, unconscious and conscious, uncontrollable and controllable. During the collaborating work, theory of mind work implicit, but through the individual work, Charlotta has become aware of the theory of mind system and she now wants to take control over this process.

The portraits became personalized without the opportunity or limitation of mirroring, as showed in image 3. We found it interesting, though, that these two images, although they were developed in different places and through various techniques and procedures over quite some time, share some expression, atmosphere and coloring. Is it possible that the reciprocal facial feedback during the joint procedure continued to influence our work subsequently, as a reaction of encountering *the other*, as Hall (1997) suggests?

VIII. Concluding remarks

This collaborating art project sheds light on the shared feeling of being together in a unified experience of creating portraits in a collaborating art project. As been seen in the vignettes and images above, the creative process is consistent with the concept of multi-level connectedness (Freedberg & Gallese, 2007), that is, a connectedness that is both reciprocal and individual, embedded in the art work as well as in the creative actions. Sanders-Bustle (2020, p. 62) claims that interaction, such as art and research, activates "new systems, rhythms, and forms", which our study confirms: we could not reproduce this study and reach the exact result again. However, our interpretations and reflections, building on the chosen theoretical departure, could do. For example, the identity fusion, i.e. the alignment of our personal professional identities and social identities (Swann, 2015), would possibly emerge even if we change the conditions.

The result raises some educational questions: How can art-teachers challenge their students in similar art projects in order to include identity work, and for what reasons? To what extent should young students pay attention to how imitation and identification operate? What kind of dialogues will support students in an art project like this? We found it interesting to see that we interacted with the portraits like we did, and we think it is essential for young students to have an introspective conversation before having an extrovert dialogue together. Writing logbooks is one way of doing this, as it helps the participant to distancing from the event and simultaneously reflect on ones' experience, emotions and perceptions.

The result of this study shows the presence of the ongoing development of the participants' social self-concept. The study reveals that *the other* is essential in this process: the depicted portraits, the actions of *the other* and the results of the actions, and the presence of the actual other persons in the room. It is also evident that we define ourselves in the interrelations between the artwork and identification. We feel oneness, and recognizes the emotional state of the depicted other, thus we argue that it is possible that mirror neurons are activated when we meet *the other* in a picture. The result reveals that this have impact on bodily reactions and state of mind, as in vignette one. One can actually identify with the depicted portrait and change one's mood. We have also seen that the aesthetic responses evoked by the collaborative artwork are complex, and involves reactions on the artwork's content, execution and performance, which in turn evoke feelings concerning one's own capability, as in vignette two. These feelings may lead to valuing and comparing, both implicit and explicit. Image 3 shows that imitation or identification may continue after the collaborative process, which can be viewed as an inherent disposition of articulateness, depending on factors such as common culture, including for example education, interests and traditions (Yarbrough, 2017). The kinship between the two images is striking, which took us by surprise, since we finished the portraits in different places and we used different methods and material.

To be able to conduct this study, we had to distance ourselves from the work to reach self-understanding, hence the interpretation is based on both participation and distancing (Ricæur, 1993). This entailed sharing experiences with each other, which in turn included a closeness of those shared experiences. This closeness in activity and communication was obviously intersubjective in several ways: body language, spoken words and visual representation. The interpretation process integrated individual as well as collaborative

phases. Just as Sanders-Bustle (2020) struggle to identify processes and methods, which may support arts-based research as a collective attempt, foregrounding social interaction as an aesthetic form, we have tried to find a pedagogical approach to both art-based research and to educational artwork. In line with Rousell (2019), who argues for a robust engagement with the aesthetics and the ontology of art, we have tried to focus on visual art and its potential as a relational mode of creative work. In a pedagogical context, this means to find methods to work with identity and identification in a collaborating manner, but also to understand the features that underpin such work. In the research context, this means to expand the ontologies and epistemologies of art-based research. In short, this means a study of being and the relationship of being, and a study of the nature of human knowledge and potential sources of knowledge. In our study, we have included mirroring and theory of mind to understand the relationship of being, in practice, in order to understand our professional identities as art-educators and artists. We used artwork, in collaboration, as the primary source of knowledge, and logbooks and dialogue as supplementary sources.

This study may contribute to an understanding of art-based research and collaborating art-projects as using dialogue as the driving force. The dialogue in our study is both visual and verbal, and it combines aesthetic perceptions and intersubjective exchanges. Through the study, we have been "co-participants in the transformation of both self and society" (Kester, 2004, p. 79). Although, one might consider this study as visual-centered, we claim that it is both social-cultural and relational centered, *and* visual-centered, and that the relational aspects are foregrounded. As Chilton and Leavy (2015) contends, arts-based research should be employed as a holistic and integrated approach, which has been our attempt here. This means that a research topic is regarded comprehensively, without labelling different aspects of the topic, in relation to false disciplinary boundaries. Instead, various perspectives could be integrated. Nevertheless, the significance of arts-based research in general and visual art exploration in particular, ought to be highlighted in short here. Chilton and Leavy (2015), argue that arts-based research can be particularly useful for research aiming to explore social and emotional experiences. One reason for that is that art can provide exclusive and distinctive access to one's internal life and support the emergence of deep self-understanding and understanding of *the other*. Art is also efficient in bringing empathy to mind, due to its immediacy, which provides embodied knowledge through profound sensorial experience (ibid). We claim that visual art, as a mean to explore a topic, has a unique aesthetic power grounded in human dependence on vision; sight is the dominant sense through which we gain a huge part of our information. In this study, we have highlighted the role of visual abilities and imitation. For example, human infants can imitate within a few weeks only by looking at a person. In addition, visual art has been a way of communicating since pre-historical times. Consequently, we regard visual art-based research as aesthetic, participatory and critical modes of knowing that become embodied through performance. In particular, we found visual art-based research through performance being adequate and suitable for research on pedagogical issues in relation to visual art and identity building, and how such work may be applied in school's art education.

References

[1].   Achrati, A. (2013). Rock Art, Perspectival, Representation and Mirror Neurons. Rock Art Research, Vol 30, Nr 1, p. 3-21.
[2].   Apperly, I. (2011). Mindreaders. The Cognitive Basis of "Theory of Mind". New York: Psycology Press.
[3].   Aure, V. (2011). Kampen om blikket. En longitudinell studie der formidling av kunst til barn o gunge danner utgangspunkt for kunstdidaktiske diskursanalyser. Doctoral thesis. Stockholm: University of Stockholm.
[4].   Barone, T. & Elliot, W. E. (2012). Arts Based Research.Thousand Oakes: Sage Publications.
[5].   Borgdorff, H. (2018). Foreword: Reasoning through art. In J. Wilson. Artists in the University Positioning Artistic Research in Higher Education. Singapore: Springer, p. v-xi.
[6].   Byrne, R.W. (2005). Social Cognition: Imitation, Imitation, Imitation. Current Biology, vol 15, nr 13, p. 1-3.
[7].   Chang, H. (2008). Autoethnography as method, Vol. 1. Walnut Creek, Calif: Left Coast Press Inc.
[8].   Ellis, C, Adams, T & Bochner, A (2011). Autoethnography: An Overview. In Forum:
[9].   Qualitative Social Research. Vol 12. No 1. Art 10.
[10].   Ferrari, P.F. & Rizzolatti, G. (2015). New Frontiers in Mirror Neuron Research. Oxford: Oxford University Press.
[11].   Grant, A. J., & Zeeman, L. (2012). Whose story is it? An autoethnography concerning narrative identity. The Qualitative Report, vol 17, p. 1–12.
[12].   Gynning, M. (2007). Porträtt och identitet. Om Alexander Roslin. [Portrait and
[13].   Identity. About Alexander Roslin]. Stockholm: National Museum.

[14]. Hall, S. (1997). The spectacle of the other. In S. Hall (ed). Representation – cultural representations and signifying practices. London: Sage Publications.

[15]. Hassett, D.D. & Curwood, J.S. (2009). Theories and Practices of Multimodal Education: The Instructional Dynamics of Picture Books and Primary Classrooms. In The Reading Teacher, 63 (4), pp. 270 – 282.

[16]. Hubard, O. (2007). Complete engagement: Embodied response in art museum education. Art Education, vol 61, no 6, p. 46-52.

[17]. Iacoboni, M. (2008). Mirroring People: The science of empathy and how we connect with others. New York: Picador.

[18]. Jewitt, C. (2008). Multimodality and Literacy in School Classrooms. London: Sage.

[19]. Kester, G. (2004). Conversation pieces: Community and communication in modern art. Berkeley, CA: University of California Press.

[20]. Knowles, J. G., & Cole, A. L. (Eds). (2008). Handbook of the arts in qualitative research. Thousand Oaks, CA: Sage.

[21]. Kress, G. & van Leeuwen, T. (2001). Multimodal Discourse. The modes and Media of

[22]. Contemporary Communication. London: Edward Arnold.

[23]. Leavy, P. (2015). Method meets Art. Art-Based Research Practice. New York: The Guilford Press.

[24]. Levinas, E. (1979). Totality and infinity. New York: Springer.

[25]. MaDonald, A. (2012). Painting research practice: how exploration of a 'painting as research' metaphor can be used to refine approaches to conducting research. Sydney: AARE/APERA Conference in Sydney.

[26]. McNiff, S. (1998). Art-Based Research. London: Jessica Kingsley Publishers.

[27]. Piechowski-Jozwiak, B., Boller, F. & Bogousslavsky, J. (2017). Universal Connection through Art: Role of Mirror Neurons in Art Production and Reception. Behavioral Science, vol 7, nr 29, p. 1-9.

[28]. Rolling Haywood Jr. J. (2013). Art-Based Research. New York: Peter Lang.

[29]. Rousell, D. (2019). Inhuman forms of life: On art as a problem for post-qualitative

[30]. research. International Journal of Qualitative Studies in Education, 32(7), 887-

[31]. 908.

[32]. Sanders-Bustle, L. (2020). Social practice as arts-based methodology: Exploring participation, multiplicity and collective action as elements of inquiry, Art/Research International: A Transdisciplinary Journal, 5(1): 47-70.

[33]. Scott-Hoy, J 2002 The visitor: Juggling life in the grip of the text, in A. P. Bochner and C. Ellis (eds), Ethnographically speaking: Autoethnography, literature and aesthetics, Walnut Creek, CA: Alta MiraPress, p. 274-94

[34]. Slaughter, V. & de Rosnay, M. (2017). Theory of Mind in Development in Context. London and New York: Routledge.

[35]. Wellman, H.M. (2018). Theory of mind: The state of the art. European Journal of Developmental Psychology, p. 1-29.

[36]. Vierkant, T. (2012). Self-knowledge and knowing other minds: The implicit/explicit distinction as a tool in understanding theory of mind. British Journal of Developmental Psychology, vol 30, p. 141– 155.

[37]. Wilson, J. (2018). Artists in the University Positioning Artistic Research in Higher Education. Singapore: Springer.

[38]. Yarbrough, M. (2017). Retreived 2018-09-09 from https://medium.com/the-mission/the-surprising-truth-about-why-we-tend-to-imitate-others-b15831070cd9