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The use of paintings and sketches as scientific knowledge

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ABSTRACT: This article is written in the field of the philosophy of science. The aim is to express how painting and drawing can be used as part of a phenomenological research method. The painter or drawer is a visual researcher in the process of capturing a holistic and truthful experience of a cultural phenomenon. We will highlight the visual researcher process and how the experience of truth is known throughout this process. The painting and sketches, which we present in this article, are part of a book, together with written narratives and pedagogical theory – on teaching as a phenomenon – called *Lærerpraksis og Pedagogisk teori*. The paintings and drawings present teaching in a way that complements and expands the written text. The sketches and painting attempt to establish the truth as unconcealment of a phenomenon. Our argumentation is based on the theories of Gadamer, Cassirer, Panofsky and Heidegger. Gadamer connects humanistic research with artistry and the experience of truth. Cassirer argues that the perception of a cultural phenomenon begins as a holistic understanding to bring forth the symbolic form or essence of the phenomenon. Panofsky transfers the theory of Cassirer into the field of painting. The concept of synthetic intuition is the intrinsic knowing of a painting, which corresponds to Cassirer's concept of symbolic forms. Heidegger's theory explores how art unfolds and preserves the truth. We will argue that the connection between art and truth could bring forth important perspectives on phenomenological science and turn the research activity closer to an artistic form.

Keywords: meaningful, synthetic intuition, truth, visual research

Introduction

Normally, scientific knowledge is understood as written information (Howe, 1966). In this article, we will try to broaden this understanding of science. Could science about human action be more than written information? To explore this question, we will connect our own research practice with the theoretical tradition of German philosophy and phenomenology as part of culture- or humanities-oriented science.

In the humanities-oriented tradition, a phenomenon that is preserved in a culture expresses action that contains living knowledge (*Æsøy*, 2018). This living knowledge is action understood as an artistic knowing-in-practice. This could be great for teaching, research, painting or other forms of good artistic deeds. An artistic knowing-in-practice is already in the world and the essence of humanities-oriented research is to present a profound and adequate expression of the phenomenon being explored.

Van Manen (2007, p. 13) says the aim of a phenomenology of practice is 'to open up possibilities for creating formative relations between being and acting, between who we are and how we act, between thoughtfulness and tact'. In this article, we will argue that paintings and sketches together with written text might establish such a knowing. We use our own research as an example of scientific practice. The phenomenon we explore is teaching, as published in the book *Lærerpraksis og*

pedagogisk teori. In this book, we use different forms of art to unpack teaching. These artforms are drawings and paintings together with written narratives of teaching and the teachers' own voices. We also use these empirical materials to analyse pedagogical theory.

Based on our research as an example, we make a philosophical exploration of the use of paintings and sketches as a form of scientific knowledge. Art-based research is a growing field, and our contribution to the theoretical discussion is to unpack the visual research process to seek a more holistic method of research in line with human cognitive abilities and action. We will focus on three questions to emphasise the visual research process: Could the use of drawings give important perspectives on how to *perceive* a human phenomenon?; What position does the researcher as an artist have to *process and interpret* a human phenomenon?; and What kind of knowledge do paintings and sketches *present* in addition to writing?

To perceive, process and present is related to the process of forming a sketch, painting or written text. To explore the researchers' practice, we will use Ernst Cassirer's philosophical theory on the logic of cultural science and Erwin Panofsky's and Martin Heidegger's understanding of art. Heidegger is normally seen as an opponent of Cassirer after the Davos dispute in 1929 (Gordon, 2004). However, in his work '*Der Ursprung des Kunstwerkes*' [The Origin of the Work of Art] from 1935/36,



FIGURE 1. Sketch of teacher in classroom, 2017

Heidegger acknowledges great art as an essential part of the human existence.

Another important source is Gadamer (2013) and his concept of truth experience and the symbolic ability to bring meaning or essence into life. He argues that a fruitful humanities-oriented process of knowing, called '*erkenntnis*', seems more closely related to artistic intuition than to systematic methodological research (Gadamer, 1986). In more general terms, Liora Bresler (2006) argues that artistic processes can illuminate significant aspects of qualitative research. The Gadamer perspective on art-based research has been elaborated on by Visser et al. (2019). In our article, we will highlight the visual researcher's process from perceiving to presenting and elaborate on how the outcome of this process might unpack truth as connected to the essence or meaning of the phenomenon being explored.

Cultural phenomena and cultural science

A cultural phenomenon is a symbolic or material artefact or a given practice that is human-made. Examples of this could be a painting, a language, a plough, a computer, a spinning factory, teaching or scientific research. All these artefacts or practices have been *created* throughout the history of humanity. The cultural phenomena come into and are preserved in the world because they are understood as meaningful for human action. This meaningfulness is what gives a given cultural phenomenon value (Heidegger, 1960). Preservation is an ongoing transaction of the essence of the phenomenon. Without such an essence, the phenomenon would not be created with meaning and not cared for in the culture. This applies to writing as well as



FIGURE 2. 1, 2, 3 here comes a message!

(A much-used phrase in Norwegian schools to make pupils pay attention)
Trine sofie Dybvikstrand

painting or teaching. The world is full of cultural phenomena with the possibility of being brought forth for human awareness in a definite way. The cultural phenomena exist in symbolic form (Cassirer, 1966), which is the essence or meaningfulness that makes the phenomenon part of a cultural experience. The symbolic forming of reality is not an imitation or representation of the world, but is part of reality and the human ability to create and capture the essence of a human life. Heidegger points out that the essence of a phenomenon is its formed matter (Heidegger, 2011), which refers to how the phenomenon unfolds as a manifold, material and meaningful happening in the world.

To do humanities-oriented research is a question of perceiving this meaningfulness of a cultural phenomenon and expressing it through different art forms. Cassirer (1966, p. 153) argues that the genuinely primary question for the basis of knowledge is to ask, '[t]o what mode of knowledge do we owe our understanding of man as the bearer and creator of culture?'. 'Mode of knowledge' is an English translation of the German word '*Erkenntnisart*' (Cassirer, 1994, p. 82). The answer to this question must be perceived by exploring different kinds of human modes that might bring knowledge to the human existence and can only be given by those who are a part of the same culture. Similarly, this article is a cultural expression made by two researchers who are part of scientific culture, and the purpose of the article is to be meaningful, to enable participation in the ongoing discussion of the practice of humanities-oriented research and to show how painting and drawing can unpack or unconceal such a meaningful practice.

On perceiving a cultural or human phenomenon

The human modes of knowledge, or '*Erkenntnisart*', have been studied by cognitive research. Dehaene (2014) reveals our cognition as a holistic activity with autonomy. The human brain works as a global neuronal workspace with constant internal autonomic activity (Dehaene, 2014). This global workspace is a seat of internal activity that originates not from the external world, but from within (Dehaene, 2014, p. 79), and 'our brain hosts a set of clever unconscious devices that constantly monitor the world around us and assign it values that guide our attention and shape our thinking'. This means that a large part of human brain activity is unconscious, and it is this part of the brain that assigns our values and shapes our thinking. Our cognitive perception of reality is never purely bodily or analytic, but always part of a spiritual, inner unconscious experience.

All cognitive modes, such as motoric, ethical, aesthetical and logical abilities, are part of this inner autonomy in the brain (Grinde, 2017). This means that ethical, aesthetic, motoric and logical modes of knowledge are always connected in this holistic understanding of the brain as an autonomous global workspace. This synthetic understanding of cognition challenges the duality between mind and body. Human cognition is part of life as a rational being. This means that the human ability to be rational is a question of being motoric, ethical, aesthetic, emotional and not only logical in a strict theoretical sense.

According to Panofsky (1972), we call this totality of our cognitive ability 'synthetic intuition'. Panofsky's concept is developed to experience the totality of a painting, and the concept is derived from Cassirer's concept 'symbolic form'. A researcher's synthetic intuition of a cultural phenomenon, the philosopher's synthetic intuition of a text, the pupil's synthetic intuition of teaching (and vice versa) or a viewer's synthetic intuition of a painting is based on the same total cognitive ability. This synthetic intuition is not an analytical or inductive technique, understood as a scientific method, but the human artistic ability to experience and unfold an essential or existential truth beyond physical facts.

Our observations and dialogues were with experienced teachers in action. These observations and dialogues were both drawn and written as raw material. The researchers' synthetic intuition was directed towards the essence or the formed matter of the phenomenon. In our research, this is the question of perceiving what makes teaching meaningful and what is the teacher's knowing-in-practice. A drawer or painter is a visual researcher, using his or her synthetic intuition when perceiving a phenomenon. The motoric ability of drawing is an essential part of the researcher's synthetic intuition and is strongly connected to emotions, ethics and logic. In our observation of the teachers' action, the visual researcher intuitively started to draw sketches, using her artistic sensibility to grasp the essential moods and sensations in the classroom. As shown in the sketches (Figures 1, 3, 4, 5, 8), the drawing does not split the modes of knowing into analytical pieces. The ethical, aesthetical, motoric and logical parts of teaching are being unpacked in each sketch, and together with the narratives and the teachers' own voices, the art of teaching appears as a unity.

For the visual researcher, drawing is not only a tool, but a way of understanding the world, sometimes even a way to exist in the world. When the visual researcher entered the classroom to observe the teacher's action, the perception and experience of



FIGURE 3. Sketch of teacher with pupil, 2017

teaching became lines, shapes and form. Through Crowther's (2017) view on material practice and autographic expressions, drawing becomes not only a method for registration, but also a way of speaking, being and expressing, sometimes even quite loudly, through materials. This is shown in the sketches made by the visual researcher.

Processing or interpreting as synthetic intuition

To process is to interpret. The hermeneutics of Gadamer (1986) focuses on the horizon of meaning ('*Bedeutungshorizont*') and how we interpret the presentation ('*Darstellung*') of a phenomenon. This is normally understood as a mostly reflective activity, but we can broaden this and talk about a horizon of synthetic interpretation. Gadamer says that the starting point of interpretation is a holistic approach, and based on this synthetic approach, humanities-oriented research unpack the meaning or essence of what is being experienced as the truth. Visser et al. (2019) understand this search for essence as the search for truth or a transcendent or mystic grasp of subject matter. Humans are not able to reach this essence or meaningfulness, but we must continue to search.

Panofsky (1972) divides the interpretation process into three parts or layers: pre-iconography, iconography and iconology. Together, these layers are the synthetic intuition incorporated into a more holistic interpretation of a phenomenon. The first layer is pre-iconography. This layer recognises, identifies and describes the cultural phenomenon as a material thing, or a 'primary or natural subject matter'. To recognise the first layer, we use sensibility. Empathy and sensitivity are two important elements in our everyday practical experience (ibid.). The second layer is called iconography. This he also refers to as 'secondary or conventional matters'. To interpret on this level,



FIGURE 4. Sketches from 4th Grade, 2017

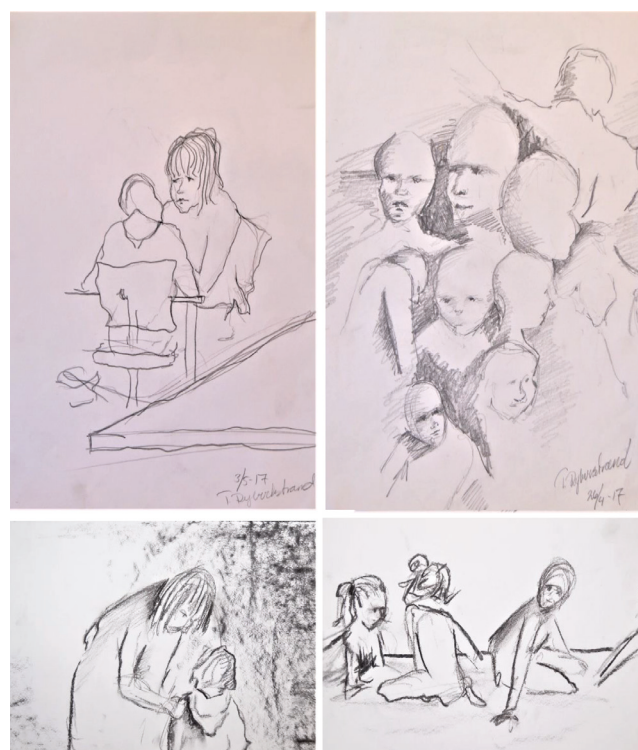


FIGURE 5. Sketches from 2nd Grade, 2017

we use our ability to make analytic assumptions. This part of our cognitive ability gives us an understanding and explanation of the cultural phenomenon. The third and final layer, the iconological, is also called 'intrinsic meaning'. It is a unity of the first two layers, but it also consists of something more. This additional interpretation is the context and the interpreter's interaction with the phenomenon. Panofsky (1972, p. 8) points out that '[i]n thus conceiving and pure forms, motifs, images, stories and allegories as manifestations of underlying principles, we interpret all these elements as what Ernst Cassirer has called [symbolical form]'. Panofsky's expression of Cassirer's phrase *symbolic form* is 'symbolical values'. The philosophical term 'form' is connected to Aristotle's and Plato's concept of essence, or what the phenomenon *is*. Cassirer (1966) is critical of the (empirical) scientific banning of Aristotle's 'dark qualities' of form.

The interpretation process has the purpose of *knowing* the phenomenon it is interpreting. This is a question of knowing the phenomenon differently than understanding the phenomenon. To understand is to analyse and break up the experience, while to know is to synthesise the phenomenon into a unit. It is through human practice that, by active engagement, we can get to *know* ('*kennen*') a phenomenon (Cassirer, 1994). Dilthey (1914–1924, p. 10; our translation) has expressed the distinction between understanding and explaining, saying, '[w]e explain [*erklären*] nature, we understand [*verstehen*] the human being [*das Seelenleben*]'. Cassirer goes a step further and differentiates between '*kenntlich*' and '*verständlich*'. Understanding something, or '*verstehen*', is something we are able to do as a viewer. On the other hand, knowing something, or '*kennen*', is a synthetic intuition only experienced by a participator in practice.

Knowing is more substantial or existential than understanding and is based on synthetic intuition.

To sum up, in the process of knowing or '*kennen*' a phenomenon, there are four different layers of interpretation: having sensibility, explaining, understanding and knowing. These different interpretations can be done with all different modes of knowing, or '*erkenntnis*'. For example, we can *sense* emphatically the sensibility of the meeting between teacher and pupils, we can give an ethical *explanation* of a specific teaching, we can *understand* an ethical action by a teacher and, based on a synthetic intuition, we can *know* teaching as an ethical practice. These ethical perspectives are experienced in the sketches (Figures 1, 3, 4, 5, 8) together with written text.

Panofsky's view corresponds with Heidegger's synthesis of matter and form as the essence of what is (Heidegger, 2011). In the making of a cultural phenomenon, the form is already composed as part of the matter. This unity of matter and form can only be acknowledged with intrinsic knowledge about the particular cultural phenomenon. The material sensibility, iconographic understanding and synthetic intuition of knowing a cultural phenomenon are necessary parts of the phenomenon's essence or formed matter. To activate all these layers, the researchers must be participants and not spectators or viewers in interpretation (Skjervheim, 2001). Participation in the research process is what Bresler (2006) expresses as dialogical connectedness.

By drawing sketches and writing narratives, we perceive and process the teacher as an intrinsic experience. This makes sketching an important part of the methodology to interpret different layers of the phenomenon, which is in line with the human ability to *know* something. Kirova and Emme (2006) make a similar inference about the use of photography as a

methodological approach. They use photography as a means to see the meaning in a phenomenon through reading and interpreting pictures.

The researcher as an artist

In Panofsky's view, it is not possible to develop a synthetic intuition without being a knower of the phenomenon one is exploring. The question is, what kind of practice makes the researcher a *knower*? Is it possible to know the general essence of teaching without having any personal experience of teaching, or could we say that the human ability to understand the unknown gives anyone the possibility to perceive the totality of any given cultural phenomenon? The latter would mean that the practice of research as a spectator or viewer should be enough to turn the researcher into a knower.

In our case, both researchers are former teachers. This background is helpful to direct the researcher's awareness towards the essence of teaching and to interpret and know a phenomenon in a meaningful and intrinsic way. In interacting with the phenomenon, the visual researcher will draw sketches of teaching and afterwards paint pictures as a synthetic intuition of the experiences. In a pre-iconographic layer, the drawer formalises the information as lines and shapes and at the same time uses his or her senses to establish care and sensitivity to the situation. In the iconographic layer, the drawer uses an analytic interpretation to explain and understand the situation. In the iconological layer, the artist uses his or her synthetic intuition to bring forth the totality of the phenomenon.

Visual research is an old tradition. An historical example is Paul Dolnstein's attempt to draw the battle at the old Älvsborg Castle in 1502 (Dolnstein, 1502) (Figure 6).

This drawing is the most important historical source of this battle, which in a profound way reveals knowledge to the reader. The picture expresses a synthetic overview. As a human being, the reader can sense the nervous emotions, the soldiers' motoric abilities and the existential dimension of the situation. A more modern use of sketches and drawings can be experienced through the art of Käthe Kollwitz. Her drawings reveal human existence in a profound and aesthetic way, as shown in the lithograph (Figure 7) (Kollwitz, 1941).

Kollwitz has been a source of inspiration for the visual researcher in this research. With her drawings, Kollwitz communicates through her own experience and emotions, which are in tune with her lines, shapes and use of light and shadow. She visualises emotions through the visual language that speaks directly to our emotions. We can clearly sense her anxiety and despair when death comes to take her child.

In the observation sketch (Figure 8), the visual researcher tries to capture and communicate her own experience of teaching in a way that shows the teacher's manifold, firm, kind and inclusive actions. The sketches are like a synthesis of her actions and bodily and verbal expressions. The visual researcher is not only interested in a correct representation of the phenomenon, but in expressing a truth that unpacks the essential disclosure of being. Van Manen (2007) quotes Heidegger when he presents phenomenology as a formative practice, but he takes for granted that this research practice is a question of writing. He says that the power of a phenomenological text lies in 'that the word can effect in our understanding, including those



FIGURE 6. The battle at the old Älvsborg Castle in 1502
Paul Dolnstein



FIGURE 7. Käthe Kollwitz: 'Death Seizes a Woman' from the series *Death*, 1934

reaches of understanding that are somehow pre-discursive and pre-cognitive and thus less accessible to conceptual and intellectual thoughts' (van Manen, 2007, p. 25). This understanding of a formative phenomenological practice should also include painting and drawing. According to Heidegger, a painting unpacks a different kind of truth than *correct* reproduction. Painting is connected to truth as an immediate experience of being (Heidegger, 2011). The truth establishes itself in the specific work, and only art lets truth originate (ibid.). This understanding of truth removes the Kantian dichotomy between the human and the world. Truth is not only a representation of the world, it is also a creation based on different human abilities to express the truth. To speak of truth as unconcealment, a human must be part of the world using the totality of their cognition as a global workspace to perceive, process and present the totality of the phenomenon which is being explored.

When the phenomenon itself is an artistic activity, such as teaching, the researcher must bring forth the essence of the artistic action as a truth experience. Heidegger calls this expression of the truth a rift.

The rift is the drawing together, into a unity, of sketch and basic design, breach and outline. Truth establishes itself in a being in such a way, indeed, that this being itself takes possession of the open region of truth (Heidegger, 2011, p. 121).

This experience of truth as a rift unpacks truth as an open region and not a region where truth is being reduced to only verbal scientific conclusions. Heidegger's examples of truth as a rift are a painting by van Gogh, a Greek temple and the poem 'Roman Fountain'. This truth is an experience that can be expressed by different artistic actions and not science alone.

In our research, we use different art forms in an attempt to establish rifts in teaching, which will give the reader a holistic approach to the being of teaching. In the interpretation process, we connect written narratives, sketches and paintings to the



FIGURE 8. Trine Sofie Dybvikstrand: *Observation sketch*, 2017

teacher's voice and pedagogical theory. The purpose of this unity is to establish an intrinsic and essential expression of teaching that combines emotional, aesthetic, motoric and ethical parts of knowing with a theoretical understanding.

The visual researcher reflects:

As a knower of teaching, researcher and artist, I tried to obtain or get hold of those moments that stood out as interesting or important for our task. Not only the big happenings, but also those small timeless moments that actually take just a few seconds. A bliss of an essential action that takes shape and room inside me and makes an impression. Sometimes an aesthetical impression, sometimes more ethical or logical. It is an ongoing communication between my synthetic intuition and what is happening around me.

The presentation of a cultural phenomenon

A scientific presentation is the final result of what is perceived, processed and created by the researcher. 'Its goal is not the universality of laws; but neither is it the individuality of facts and phenomena' (Cassirer, 1966, p. 144). The presentation both divides and unifies the phenomenon. According to Heron (1992), aesthetic patterns communicate in a coherent imaginary whole, deep feeling and emotion, and they are also connected to values such as clarity, measure, balance, proportion, wholeness and harmony. Cassirer (1966) interprets the cultural creation of meaning or form as the unity between the particular and universal. In our case, we try to present the being of teaching as it happens in the classroom: creating a relationship between the universal and the particular. Our book about teaching (Fjeld et al., 2020) is neither about the universal law of teaching nor about the individuality of the teachers we have observed in action. It is a humble attempt to present and be part of the artistic action of being a teacher.

Practical action always takes place in the mode of being, and the researchers' presentation is in a dialogue with the cultural phenomenon. The preservation and unfolding of a phenomenon is manifold and changing based on ongoing transactions. The visual language in the book could be embedded in the reader as reactions, actions, emotions and theoretical interpretations, which may establish her or his living knowledge of teaching. The reader is the perceiver of the scientific presentation as an art form. A scientific presentation will create reactions and emotions in the reader as well as logical considerations. This can also be described as a transaction between the perceiver and the material that is presented, which gives the reader a profound sensation of what teaching really is.

From drawing sketches to final paintings




Sketches are a visual researcher's raw material, like the writer's field notes. However, sketches are also works of art that can present a truth by preserving what is immediate in the moment. Sketches do not appear linearly or strictly analytically. Drawing gives a distinctive approach to the truth, which in turn provides the reader with a more immediate recognition of a phenomenon. At the same time, sketches are starting points for creating paintings.

A painting is a further interpretation of what has been observed and drawn (see Table 1 for the visual plan). A painting is more like a theory and presents a phenomenon as a unity. The painting materialises the phenomenon and establishes a refined meaning like an essence that densifies the relationship between the universal and the particular. 'A painting...is not the reproduction

of some particular entity that happens to be at hand at any given time; it is, on the contrary, the reproduction of things' general essence' (Heidegger, 2011, p. 103). The living experience in the classroom has been translated into the painting that could be *recognised* and further developed in the reader's interpretations. Both the sketches and the paintings are forms of art with an intrinsic meaning that has already been processed in the artist. The work has given the artist the possibility to grasp the form of the phenomenon and translate it into a creative process, which could be further created by the reader and the teacher's action in future classroom settings.

The visual plan shows the process and connection between the sketches, narratives, teachers' voices, theories and paintings. The painting is called *To Be Is to Learn* and is presented at the beginning of the chapter 'Learning Theories' (Fjeld et al., 2020, p. 74). The girl is also in the narrative 'Anna does a rebellion' (Fjeld et al., 2020, p. 49). Anna gets into a quarrel with three other pupils about which chair to use. The teacher's reaction is to decide where the girl is to sit. The teacher's voice focuses on '[v]ulnerable pupils need well-defined regulations' (Fjeld et al., 2020, p. 50). The painting is not only based on this narrative and the teacher's voice, nor is it based only on the totality of the classroom experienced by the visual teacher. It is also based on different theoretical perspectives on learning and other teachers' voices from different classrooms. The quotes presented in the visual plan prove the holistic modes of knowledge, which is at stake in teacher practice. The meeting between teacher and pupil is both about learning and ethics. We can even sense the aesthetic perspective when the teacher focuses on when something profound is happening in a child's life. This emotional

TABLE 1. Visual plan – How painting can be understood as theory

Observations and sketches as reason to paint	Narratives and teachers' voices as a reason to paint	Theoretical approaches
	<p>'In the classroom, we discuss what justice is, knowing that everybody is different. Which means, we can't treat everybody equal' (Fjeld et al., 2020, p. 39) (our translation)</p> <p>'When something profound is happening in a child's life, you, as a teacher, can't expect the child to focus too much on learning' (Fjeld et al., 2020, p. 48) (our translation)</p> <p>'I always try to focus on what is good or working well, then I can talk about improvement' (Fjeld et al., 2020, p. 55) (our translation)</p>	<p>Albert Bandura Ernst Cassirer Stanislas Dehaene Lev Vygotsky Jean Piaget</p>
		

and existential dimension highlights a deep kind of learning, which the book (Fjeld et al., 2020) discusses further in the chapter on learning and ethical theories.

In the painting, we can sense the tension between the different pupils. We can understand the difference between the polite, maybe even conforming pupils, with their hands high in the air, and the vulnerable girl with butterflies and anger in her eyes. The dark green colour of the girl's verbal language captures the reader's eye, but behind this painful colour, we are able to grasp the blue butterflies. They reveal a different story, not only connected to the girl's cognitive emotions and behaviour, but also to the girl's social environment and upbringing. On the contrary, the other pupils' expressions of perfection are almost provoking. The reader is able to know the dialectical tension between discipline and freedom, between obedience and critical thinking or between vulnerability and perfection as essential parts of the learning process. All of this is necessary knowledge in the teacher's ability to adapt the classroom to the diversity of children's development. To better understand this teacher competence, we present the painting *Thousands of Choices Every Day*, which is also on the cover of our book (Fjeld et al., 2020) (see Figure 9).

This painting is divided into three areas. In the foreground, there is a black layer that the teacher is heading towards. The stripes in the background represent the past. The teacher is the present, but her hand is already in the future. The painting shows how the teacher is always simultaneously in the past, present and future. The hand of mathematical knowledge represents a mystical universal knowledge that is part of the teacher's action. This could be understood as a motoric knowledge of action, or tacit knowledge, which is necessary to be consistent and skilful. It is necessary knowledge to become artistic and improvise with virtue. In front of her mouth, the teacher has an admirer butterfly, and her brain and heart have switched places. The butterfly could represent the teacher as a leader or how the children admire her. The switched organs could help the reader to remove the duality between brain and heart, between ethical and logical rationality or between the emotions and the head. These distinctions are old myths or analytical tools. In the world and classroom, they do not exist. The living knowledge of good teaching is in the teacher as a whole person, and all modes of knowing are revealed in their interaction with children.

Through the painting, it is possible to sense the knowing of teaching and how it is done and to sense the critical expression that challenges the reader's pre-understanding to bring new meaning and emotional engagement into teaching practice. At the same time, it is necessary to interpret the visual language together with the verbal writings to be able to experience a more holistic understanding of the phenomenon, as is done in the book (Fjeld et al., 2020).

Reading a painting can in many ways be different from reading a verbal text. There is no clear start or end point. The linear process has crumbled and gives room for an ongoing synthetic conversation between oneself and the picture. It opens up an aesthetical approach and the synthetic intuition of the reader and can create growth to new and other perspectives or give impulses for thinking or rethinking, action and reaction. The painting *Thousands of Choices Every Day* can also be interpreted as a visual expression of this article. By studying the painting, the reader might rethink or question the common understanding of what cognition is, what truth might be or how scientific research

should become more in line with the human ability to perceive, process and present knowledge, not only as a representation of the external world, but as a truth experience.

Verbal writing as a form of art

Verbal writing as a form of art can be manifold. In our case, we use narratives to describe a phenomenon and give thin descriptions to try to capture the essence of small dramas that unfold in the classroom and provide understanding and some salient and remarkable features for the phenomenon. We use pedagogical theory to orientate the reader about the essence of teaching. To create a better understanding of the teacher, we present the teacher's own voice. The teachers have commented on the stories based on the dialogues, interviews and reading of narratives. The salient and remarkable feature of writing narratives is to unpack the understanding and essence of a phenomenon in a rational way. It is important to understand that these rational interpretations bring emotions and reactions to life in the reader. The combination of narratives, theory and teacher's voice, together with the sketches and paintings, give the reader many opportunities to capture teaching as a cultural phenomenon.



FIGURE 9. *Thousands of choices every day*

Some challenges and further artistic research

There are some challenges to our argumentation. Some may argue that we mix artistic creativity with scientific methods. It is true that we understand humanities-oriented research as connected with artistic action, but at the same time, we emphasise the scientific search for truth as part of this action. Research that uses different artforms focuses on the truth experience and not only the aesthetic mode of knowing. We hope this article could inspire further use of drawing and painting – or other forms of art – in the research process to perceive, interpret and present cultural phenomenon.

Based on our argumentation about the interpreter as a knower, is it only possible for performing teachers to understand our book? The reader will better know the content, by having first-hand experience with teaching, but the presentation of the phenomenon is familiar to most human beings. This has something to do with the phenomenon we have studied, but it also involves the human ability of transferring meaning into different contexts. Still, first-hand experience brings forth knowledge as a truth experience.

If scientific expressions are more than writing, could it be possible to film teaching and present it as science? A well-made movie about teaching could be an effective art form, but sketches, painting and writing together reveal the essence or symbolic form of teaching. We try to highlight the meaning of teaching, that the reader can experience as truth about teaching. To have such a truth experience, the content should be fruitful for further development of teaching.

A fourth problem is that

[a]ttempts to scientify different forms of practically mediated knowledge have generally led either to an erosion of such forms of knowledge or to a growing gulf between various forms of practice and a newly created science of the field of practice... (Molander, 2015, p. 39).

The erosion is normally understood as a verbal attempt to express how to do practice. This leads to an erosion because our verbal language does not capture the correct experience of what the real knowing-in-practice is, and the reader will try to analyse the written text with this purpose. Sketches and paintings are direct attempts to reduce this erosion. Visual language has a more synthetic expression of teaching and is difficult to analyse. We also try to reduce the gap between pedagogical science and teacher practice by expressing teachers' knowledge through different practical artforms and bringing in the teacher's voice as part of the scientific presentation.

Carl Rogers (1961, p. 212) criticises empirical science, saying that '[s]cience can of course study the events which occur, but always in a way which is irrelevant to what is occurring'. Our research may be subject to this criticism: both its visual and verbal language may present irrelevant or unessential expressions of being a teacher. In the end, the real test of our research is the reader's use of the book. Truth as experience is being actual in a preservation. If the reader finds our research irrelevant for teaching, the book will not become preserved in our culture. At the same time, the attempt to express a more profound or deeper knowledge of teaching may disturb the reader's understanding of what he or she learns from the book. The reader may not be conscious of what kind of motoric, emotional, ethical and analytical knowledge the book could

provide, but that does not mean the reader does not learn. The living knowledge is embedded in the person and extended through his or her present action. We know much more than we are conscious of (Dehaene, 2014). In other words, the more essential knowledge is in the human being, the more difficult it is to be aware of it when not in action.

Final remarks

Teaching, research, writing and painting are art forms that are created and preserved by human action. Humanities-oriented research is an art form – more than a methodological activity – in the search for meaning and essences that are preserved in a cultural phenomenon. This scientific artform contributes to the cultural phenomenon by being part of the cultural world in the search for truth. Cultural expressions are cognitively available by humanity's active engagement in this culture.

Our phenomenological practice as verbal and visual researchers is in line with the theories of Heidegger, Cassirer, Gadamer and Panofsky. Our research practice is a complementary expression of these theoretical approaches when we highlight how the visual researcher perceives, processes and presents a cultural phenomenon in the transaction of being in the world. By seeking the essence or meaningfulness of a phenomenon, the research exposes emotional, motoric and ethical knowledge together with theoretical understanding. By using verbal and visual language, we reveal a cultural scientific expression of teaching, which is in line with human cognitive abilities and action.

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