JYU DISSERTATIONS 485

Mari Myllylä

# Embodied Mind and Mental Contents in Graffiti Art Experience

UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF INFORMATION TECHNOLOGY

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Editors
Marja-Leena Rantalainen
Faculty of Information Technology, University of Jyväskylä
Päivi Vuorio
Open Science Centre, University of Jyväskylä



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# ABSTRACT

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Graffiti can evoke different thoughts, emotions, motivations and behaviors in different individuals. According to a cognitive scientific view, when experiencing graffiti an individual consciously experiences representational mental information contents. They are constructs of knowledge structures of perceivable and non-perceivable information about the world and things, combinations of perceptions and learned contents. Information can be embodied in gestures and speech and embedded in external artefacts such as graffiti. Verbally denoted experience of graffiti can inform about graffiti spectator's conscious and unconscious mental contents and processes. However, research that studies mental contents in spectators' graffiti experience has been missing. Research is needed to investigate graffiti evoked experienced mental contents and their differences between individuals with varying levels of graffiti knowledge.

In this thesis mental contents of conscious experience of graffiti are studied by analyzing verbal protocols of laypeople and graffiti experts. Heterophenomenological approach is used to combine subjects' first-person and researcher's third-person perspectives with a theoretical framework about consciousness and its representational contents. The results suggest that when individuals interact with graffiti, they experience them as something that have meaning and make sense. The experienced contents can have a certain feeling, they can be about movements, positionings and relations, facts or images and imaginations, reflecting individuals' pre-existing knowledge and assumptions about graffiti. Understanding is gained in subjective, embodied and inferencing interpretation processes. Meaningful contents are constructed through emotional appraisal and apperception processes. In interpreting ambiguous graffiti existing mental representations are reconstructed into new representations. This content-based approach is not limited to research experience of graffiti, but it can also be applied to study thinking, contents of mental representations, the consciousness, and the human mind as embodied, predictive and narrative mind.

Keywords: graffiti art experience, embodied mind, mental representations, mental information contents, thinking, consciousness

# TIIVISTELMÄ (ABSTRACT IN FINNISH)

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Kehollinen mieli ja mielen sisältö graffititaidekokemuksessa
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Graffiti voi herättää erilaisia ajatuksia, tunteita, motiiveja ja käyttäytymistä. Kognitiotieteellisen näkemyksen mukaan yksilön kokiessa graffiteja hän tietoisesti kokee representationaalisia informaatiosisältöjä. Ne ovat tietorakennelmien konstruktioita havaittavasta ja ei-havaittavasta informaatiosta maailmasta ja asioista, yhdistelmiä havainnoista ja opituista sisällöistä. Informaatio voi sisältyä kehollisiin eleisiin, puheeseen sekä ulkoisiin esineisiin kuten graffiteihin. Sanoin ilmaistu graffitin kokemus voi kertoa katsojan tietoisista ja tiedostamattomista mielen sisällöistä ja prosesseista. Katsojien graffitikokemuksen mielen sisältöjen tutkimus kuitenkin puuttuu. Tutkimusta tarvitaan selvittämään graffitien synnyttämiä tietoisesti koettuja mielen sisältöjä ja niiden eroja graffitista eri verran tietävien yksilöiden välillä.

Tässä väitöskirjassa tietoisen graffitikokemuksen mielensisältöjä tutkitaan analysoimalla maallikkojen ja graffitieksperttien puhuttuja sisältöjä. Heterofenomenologista lähestymistapaa käytetään yhdistämään koehenkilöiden ensimmäisen persoonan ja tutkijan kolmannen persoonan näkökulmat tietoisuuden ja sen representationaalisten sisältöjen viitekehyksessä. Tulosten mukaan vuorovaikutuksessa graffitit koetaan jonakin, jossa on merkitystä ja järkeä. Koetuilla sisällöillä voi olla tietty tunne, ne voivat koskea liikkeitä, sijoittumisia ja suhteita, faktoja tai kuvia ja kuvitelmia, heijastaen yksilöiden ennakkotietoa ja oletuksia graffiteista. Ymmärrys luodaan subjektiivisissa, kehollisissa ja päättelevissä tulkintaprosesseissa. Merkitykset rakentuvat emotionaalisessa arvioinnissa ja apperseptioprosessissa. Tulkitessa epäselviä graffiteja olemassa olevat mentaaliset representaatiot rakennetaan uusiksi. Tämä sisältöpohjainen lähestymistapa soveltuu tutkimukseen, joka koskee graffitien kokemista mutta myös ajattelua, mentaalisten representaatioiden sisältöjä, tietoisuutta, sekä ihmisen kehollista, ennakoivaa ja kertovaa mieltä.

Avainsanat: graffititaiteen kokemus, kehollinen mieli, mentaalinen representaatio, mielen informaatiosisällöt, ajattelu, tietoisuus

**Author**

Mari Myllylä
Faculty of Information Technology
University of Jyväskylä
Finland
mari.t.myllyla@jyu.fi
ORCID 0000-0002-9753-373X

**Supervisors**

Pertti Saariluoma
Faculty of Information Technology
University of Jyväskylä
Finland

Annika Waenerberg
Department of Music, Art and Culture Studies
University of Jyväskylä
Finland

Johanna Silvennoinen
Faculty of Information Technology
University of Jyväskylä
Finland

**Reviewers**

Andrea Baldini
School of Arts
Nanjing University
PR China

Susan Hansen
Department of Psychology
Middlesex University London
The United Kingdom

**Opponent**

Jack Lyons
School of Humanities
University of Glasgow
The United Kingdom

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## LIST OF INCLUDED ARTICLES

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In Article VI Myllylä has done the formal analysis, investigation, and visualization. Myllylä and Saariluoma have contributed to the conceptualization, methodology and writing of the manuscript. Authors have equally contributed to the article.

## FIGURES


FIGURE 1 Research constellation of this thesis ..... 38
FIGURE 2 The first graffiti stimulus in the first experiment. ..... 137
FIGURE 3 The second graffiti stimulus in the first experiment and one of the two stimuli in the second experiment ..... 138
FIGURE 4 The third graffiti stimulus in the first experiment ..... 138
FIGURE 5 The fourth graffiti stimulus in the first experiment ..... 139
FIGURE 6 The fifth graffiti stimulus in the first experiment ..... 139
FIGURE 7 Another graffiti stimulus of the two stimuli in the second experiment ..... 140

# CONTENTS

ABSTRACT
TIIVISTELMÄ (ABSTRACT IN FINNISH)
ACKNOWLEDGEMENTS
LIST OF INCLUDED ARTICLES
FIGURES
CONTENTS

1 INTRODUCTION ..... 13
1.1 Research objectives and questions ..... 14
1.2 Human-technology-interaction research paradigm ..... 16
1.3 Basic concepts ..... 18
1.3.1 Perceiving ..... 19
1.3.2 Thinking ..... 21
1.3.3 Experiencing ..... 21
1.3.4 Embodied and predictive mind ..... 22
1.3.5 Information contents in mental representations ..... 23
1.4 Short history of theoretical underpinnings related to research of cognition, mind, art and aesthetic experience ..... 24
1.5 Previous approaches to graffiti ..... 32
1.5.1 Graffiti as art ..... 36
1.5.2 Graffiti as technology ..... 37
1.6 Construction of this thesis ..... 37

2 CONSCIOUS EXPERIENCE ..... 40
2.1 Experience as a conscious mental phenomenon ..... 40
2.2 Appraisal, apperception, and restructuring of mental contents in experience ..... 48
2.2.1 Appraisal and evaluation of emotions ..... 50
2.2.2 Apperception and association of mental representations ..... 54
2.2.3 Thinking as problem-solving ..... 55
2.2.4 Insight and restructuring ..... 57
2.3 Conscious experience of graffiti ..... 58

3 NEURONAL BASIS OF CONSCIOUSNESS ..... 60
3.1 Information and consciousness ..... 61
3.2 Empirical theories of consciousness ..... 62
3.3 Causal picture of experience ..... 66
3.4 Cognitive penetration in experience ..... 68
3.5 Neuronal basis of conscious experience of graffiti ..... 70

4 EXPERIENCING MIND ..... 71
4.1 Representational theories of the mind and the consciousness ..... 72
4.1.1 Intentionality ..... 73
4.1.2 Strong and weak forms of representationalism ..... 75
4.1.3 Schema and schemata ..... 76
4.1.4 Mental states, conscious states, and contents of mental states 78
4.2 Alternative theories of the mind ..... 80
4.3 Mind as a predictive narrator ..... 81
4.4 Embodied, embedded, enacted, and extended mind ..... 84
4.5 Representational, predicting and embodied mind ..... 89

5 MENTAL CONTENTS OF EXPERIENCE ..... 92
5.1 Phenomenal content of experience ..... 92
5.2 Conceptual and non-conceptual content of experience ..... 94
5.2.1 Conceptualism and conceptualizing ..... 98
5.2.2 Phenomenal properties of conceptual and non-conceptual content ..... 101
5.3 Types of representational information contents in conscious experience ..... 102
5.4 Mental contents in experience of graffiti ..... 106

6 EXPERTISE AND MENTAL CONTENTS ..... 108
6.1 Expertise and experiencing ..... 111
6.2 Expertise and culture as learned information ..... 112
6.3 Graffiti expertise and experience of graffiti ..... 114

7 METHODOLOGY ..... 116
7.1 Heterophenomenology and protocol-analysis ..... 120
7.1.1 Heterophenomenology and some alternative phenomenological approaches ..... 120
7.1.2 Protocol analysis and verbal reporting ..... 125
7.2 Content-based approach and applied thematic analysis ..... 129
7.3 Trustworthiness and reflection ..... 131
7.4 Discussion on methodology ..... 135
7.5 Experiments ..... 136
7.5.1 Experiment procedures ..... 137
7.5.2 Special notes ..... 141

8 INFORMATION CONTENTS IN MENTAL REPRESENTATION IN GRAFFITI ART EXPERIENCE ..... 144
8.1 Main contents and findings of articles ..... 148
8.1.1 Graffiti as a palimpsest ..... 148
8.1.2 Graffiti and the embodied mind ..... 149
8.1.3 Graffiti art as a spatial and social experience ..... 150
8.1.4 Emotions in graffiti experience ..... 150

8.1.5 Empathy in graffiti experience ..... 151
8.1.6 Becoming conscious of mental contents in graffiti experience ..... 152
8.2 Contributions of articles: Mental information contents in the embodied mind in graffiti experience ..... 153
8.3 General discussion ..... 156

9 CONCLUSIONS ..... 163
9.1 Limitations and evaluation of the study ..... 165
9.2 Future research ..... 167

YHTEENVETO (SUMMARY IN FINNISH) ..... 169

REFERENCES ..... 172

ORIGINAL PAPERS

# 1 INTRODUCTION

Graffiti can evoke many thoughts, emotions, and motivations among different individuals. When one person is asked to tell about graffiti, they might think about scribble-like, illegible markings made with a marker pen on an electric utility box next to the neighborhood supermarket, and perhaps how annoying it is that young boys go and vandalize city properties like that. Another person might think about a large and colorful wall painting that they saw in an art exhibition, and how fascinated and amazed they felt after seeing such a different work of art than what they had anticipated. Yet another person can be interested in the technical execution of some graffito and imagine how they would have painted it, while another person might remember how they secretly painted graffiti on a train car with their friends back in a time when they were young and feeling rebellious. These are all hypothetical but perhaps quite stereotypical examples of how people think and feel about graffiti and how they might typically explain their thoughts while looking at graffiti works.

Verbal and other forms of expression about an individual's thoughts, emotions and motivations when they look at graffiti can be used to investigate mental contents that are consciously experienced by the experiencing individual. The primary role of graffiti in this research is to be a stimulus for investigating the subjective experience of graffiti as a conscious phenomenon. Specifically, graffiti is used to investigate the information content in mental representations of individuals who are experiencing visual stimuli like graffiti art. Experiencing something is not the same as perceiving something or having a perceptual experience. It is having an overall, lived experience that involves the object, the situation and context, the experiencer, and other people who dwell in same spatiotemporal, sociocultural world.

So far, the academic research surrounding conscious mental contents in graffiti experience has remained quite sparse. Malinen (2011) explored graffiti as a phenomenon that comes across through psycho-cognitive, social, and embodied actions, especially as part of the development of youth identity. In more recent graffiti-related academic research, Fransberg (2021) has focused on

how gendered bodies in Finland are born in graffiti, via different cultural narratives in embodied participation in street and graffiti culture. Tolonen (2021) has also investigated genders and how they are expressed in Spanish street art, concluding that street art artifacts, which are made by women for women, embody gender-related sociocultural information contents extended to visual street art artifacts as social interventions, but also in discourse with larger cultural and political narratives. Ylinen (2018) investigated how graffiti narratives are communicated in public storylines in urban city planning, marketing, and news, concluding that there are dominant narratives emphasizing things such as progress, change, and sustainability, but also graffiti culture's own narratives about lawlessness, art, and culture. Internationally, research has been conducted about the graffiti writers' agency and the embodiment of their personalities in their works (Schacter, 2008), and about phases of social learning and psychological development in reflection to graffiti writing and graffiti culture (Taylor, 2012; Hedegaard, 2014; Othen-Price, 2006; Watzlawik, 2014). Street art has also been researched using a cognitive semiotic approach, focusing on metaphors in street art as a form of polysemiotic communication, which integrates semantic signs and embodied actions (Stampoulidis et al., 2019).

Thus, investigating the experience of graffiti as a cognitive process, where the conscious experience and its representational mental content are based on the view of a human as an interactive, bio-psycho-cognitive-social agent, brings new contributions to the existing literature about graffiti and experience research. The knowledge from this research can be used to justifiably explicate phenomena that are related to human cognitive processes, mental contents, and consciousness itself.

## 1.1 Research objectives and questions

In human-technology interaction (HTI), an experience is understood as an interrelated system of "cognitive, emotional, motivational, and personality phenomena" that are further linked to societies and culture (Saariluoma et al., 2016, p. 157). Even though personality has been found to be an important aspect in research of experience, also in art experience (Fayn & Silvia, 2015; Gartus & Leder, 2014), in this research the differences in personalities and other individual characteristics have been left out of the research scope. Also, graffiti experience could be studied from the point of emotional experience and technology ethics because whether something is classified as 'good' or 'bad' is based on emotions and emotional processes in social discourses (Saariluoma, 2020). The topic of goodness and badness of graffiti has been discussed in Article IV, but further discussion about values and ethics has been left out. The main objective of this research is on the mental information contents in the conscious experience of graffiti and possible differences between individuals as observers of graffiti based on their level of expertise in graffiti.

This research is not about graffiti per se, nor is it about art. Neither is it about what has been understood as "art" in the past or in the current art discourses. Instead of focusing on graffiti, art and their properties or definitions, this research focuses on the mental contents of the individuals who experience graffiti. For readers who are more interested in investigations that use content-based approaches to experiencing art that are similar to those used in this research, but where the emphasis is on aesthetic experience within the context of visual fine artworks, the research by Kuuva (2007) can be more appealing. Outside the context of art, a content-based approach has been used to research, for example, mental contents in cognitive and affective constructs in visual technology experience (Silvennoinen, 2017), those in material experience (Silvennoinen et al., 2015), and those in product experience (Saariluoma et al., 2015).

There are many similarities and intersections with this research and that of Kuuva (2007). Together they can improve the explanatory depth to those issues that they both are concerned of: the information contents in mental representations in experiencing art, and the differences in those contents within laypeople and experts.

This thesis aims to investigate the following research question:

RQ1: What are the information contents of mental representations when people experience graffiti art?

Based on research about art experience, it can be argued that people who are more experienced and well-versed in graffiti would also see things and make different inferences about the graffiti than laypeople without the same level of expertise. This leads to the additional research questions:

RQ2: Do graffiti experts have different mental information content than laypeople, and, if so,

RQ3: what kind of differences exist in the mental content of laypeople and experts?

By answering these questions, this research contributes to the current knowledge of mental contents between different individuals with a different levels of expertise about graffiti. It describes different kinds of contents, and how they emerge in conscious experience during verbal thinking-aloud protocols. It exemplifies how learning and expertise has an effect on the information contents in mental representations, thus resulting in different experiences between experts and non-experts. In addition, it advances methodological and metodical knowledge how to investigate mental information contents by presenting an approach that is called content-based cognitive science, or content-based thinking. This approach opens up novel possibilities to investigate contents of mental representations, not just in graffiti experience but in any kind of experience. It also introduces a new way to describe the mental process of becoming conscious of something.

In general, using graffiti to research stimuli for investigating emerging experiences among their viewers fits well with the notion that after the restrictions set by the period of zero-tolerance against graffiti in Finland and Scandinavia, there is now a new wave of graffiti and interest toward it (Fransberg, 2021). There are more and more legal graffiti writing spots and urban art projects around Finland that have made graffiti more present in a concrete and abstract sense. Graffiti and other forms of urban art are becoming more visible in the everyday urban landscape and, perhaps, valued in a new light by its spectators.

## 1.2 Human-technology-interaction research paradigm

In order to be able to investigate mental information contents when individuals experience graffiti it is important that the researcher possesses theoretical knowledge with adequate explanatory power about the human mind, mental contents and a conscious experience that emerges when an individual interacts with the world and objects in it. As noted by Saariluoma et al. (2016, p. 81), "all artifacts have identical basic interaction properties and a conceptual structure to the extent that, after receiving input information from the user, the artifact interacts with the environment and gives feedback to the user."

Interaction as a term can have several meanings (Hornbæk & Oulasvirta, 2017; Lilienfeld et al., 2015). For example, Hornbæk and Oulasvirta (2017) explained seven concepts of interaction that they understood as relevant in the field of human–computer interaction (HCI); however, this is not an exhaustive list of all possible definitions of interaction. In the list provided by Hornbæk and Oulasvirta (2017), interaction can be conceptualized as follows:

1. Dialogue, which "is a cyclic process of communication acts and their interpretations."
2. Transmission, where there is "a sender sending a message over a noisy channel."
3. Tool use, where there is "a human that uses tools to manipulate and act in the world."
4. Optimal behavior, such as "adapting behavior to goals, task, UI [user interface], and capabilities."
5. Embodiment, which means "acting and being in situations of a material and social world."
6. Experience, which means "an ongoing stream of expectations, feelings, memories."
7. Control, which means "interactive minimization of error against some reference." (Hornbæk & Oulasvirta, 2017, p. 3)

In psychological science, according to Lilienfeld et al. (2015), interaction can have at least four different meanings in a person–situation context. First, two different things can both be causing a third thing. Second, the relation between two different things can be bidirectional, and the two things can influence each other.

Third, the influences of two things on a third thing are inseparable because there is a continuous transaction within the third thing that the two things affect. Fourth, there are statistical effects of one thing that depend on another thing, and the statistical effects of that other thing depend on the first thing (Lilienfeld et al., 2015, p. 9). In this paper, interaction is defined as an unfolding mental activity in which experience is a result of the evaluative appraisal process, apperception, and thinking of an experiencing individual, where interactions between the individual and information embedded in objects are shaped by the users' perceptions, emotions, knowledge, and expectations (Hornbæk & Oulasvirta, 2017). The characteristics of the experiencing individual and the properties of the experienced graffiti both affect how the interaction unfolds between those entities and what type of experiences it creates (e.g., whether the mental event itself is experienced as pleasant or something else). What makes an experience considered pleasant can depend on each experiencer, their individual and cultural characteristics, as well as the purpose, time, and context in which the interaction occurs (Hassenzahl, n.d.; Hassenzahl & Tractinsky, 2006).

A research paradigm that comes from the field of human-technology-interaction (HTI) can provide a fruitful research framework and approach for studying conscious experience in experiencing graffiti. These kinds of research paradigms are user experience (UX) research and user psychology. UX is typically interested in the direct and immediately felt, psychological experience of users when they interact with a product, service, or a system, not just computers (Hartson & Pyla, 2012; Saariluoma et al., 2016). User experience research is concerned with the use of technology in different contexts and its underlying psychological framework can be applied during the research and design phases of things such as social interactions and architecture (Krukar et. al, 2016; Saariluoma et al., 2016; Saariluoma & Oulasvirta, 2010). Being part of the HTI framework, a UX paradigm assumes that people have unique conscious experiences, (i.e. thoughts, meanings, and feelings) when they interact with stimuli from the material and social world and its objects, such as technological artifacts (Saariluoma et al., 2016; Saariluoma & Oulasvirta, 2010).

User psychology investigates the problems associated with emotions, knowledge, mental processes, and psychological human characteristics when people interact with technology, from the scientific discourse of psychological thinking, concepts, and theories (Saariluoma et al., 2016; Saariluoma, 2004, 2020). Typically, these problems concern issues of how people relate to and are able to use technology but also to "non-functional human requirements for technical artifacts" (Saariluoma et al., 2016, p. 80). Instead of focusing on the usability of technological devices, for example, user psychology aims to analyze and understand the human mind and human behavior, including aspects such as people's motives and technology's meaning in life, from both individual and social levels, which form the explanatory framework of user psychology (Saariluoma, 2004). Thus, even though user psychology has been associated with a subfield of the psychological study of humans' use of computers in computer science (Moran, 1981), user psychological thinking can be applied to investigate

all cases of human technology interaction. Psychology itself is relevant to the research of the human mind and behavior and it is becoming increasingly intertwined with other fields of science, such as neuroscience and the sciences of mind, law, economics, decision making, and art research (Pinker, 2011).

## 1.3 Basic concepts

Typically, cognitive scientific explanations are based on the representational theory of mind (Egan, 2014; Fodor, 2008; Gennaro, 2018; Lycan, 2019; Thagard, 2005; Von Eckardt, 2012), where mental representations include information such as "rules, concepts, images, and analogies" (Thagard, 2005, p. 4). The brain can be understood as one part of this physical system that operates as a serial and parallel processor of information contents from the internal and external world, information that is organized in knowledge structures as mental representations (Bly & Rumelhart, 1999; Thagard, 2005). Knowledge can be described as a "body of facts, information, descriptions, understandings, and skills possessed by an individual, a team, an organization, or a social group," where the knowledge can be "about something (factual) or about how to do something (skillful)," (Lintern et al., 2018, p. 165) and which can be either explicit or implicit, and readily accessible to conscious awareness or not (Lintern et al., 2018). According to Piaget (1964/2003), in order to know something, having both knowledge about an object and "the natural psychological reality" (Piaget, 1964/2003, p. s9), and to extract knowledge from the object, requires workings of some internal mental operations. In these operations, the object of knowledge is modified and transformed into mental constructs that have interrelated logical structures with other knowledge constructs, and which can also be separated (Piaget, 1964/2003).

René Descartes, who is often coined as the father of modern philosophy, was an individual with a quest "for absolute truth and unconditional knowledge" (Prado, 2009, p. 1). In addition to inventing and developing modern epistemology and issues that "would dominate philosophical thinking for more than 300 years after his own time" (Prado, 2009, p. 1), Descartes invented mind/body dualism and the natural philosophy of body and mind. He was interested in thinking, sensing, imagining, and representations and pioneered in several scientific traditions, such as mechanical philosophy, physiology, and psycho-physiology (Prado, 2009; Gaukroger, 2004). Descartes (1641/1996) proposed that things which exist in reality have their representational counterparts which are perceived as intuitions by the mind. These perceptions "may be imperfect and confused as it was formerly, or clear and distinct as it is at present, according as my attention is more or less directed to the elements which are found in it, and of which it is composed" (Descartes, 1641/1996, p. 68). For Descartes perceptions and imaginations were subjective "modes of thoughts" (1641/1996, p. 70). According to Descartes (1641/1996), represented things have some simple and universal properties, such as their colors, which are found in

the real world, even when an individual is imagining those things. Things, whether they are of senses, corporeal substances, time, and so on, are represented as ideas. An individual creates an understanding of what one believes they are perceiving in a subjective, mental judgment. Thinking (which includes thinking as cognitive understanding and emotional feeling), will, bodily senses, and needs motivate actions and guide behavior. The kind of judgments an individual makes depends on what kind of ideas an individual possesses. At the same time, an individual is unconscious of any external forces that can impact their judgments (Descartes, 1641/1996).

The following sections (Sections 1.3.1-1.3.5) describe shortly the basic concepts that are important for research about information contents in experience of graffiti art. They are also essential to understand some of the essential processes and phenomena that underly any conscious experience, such as perceiving, thinking, experiencing, mind as embodied and making predictions, and finally, to understand information contents in mental representations.

### 1.3.1 Perceiving

It can be stated that "any student of philosophy – or of contemporary thought in general" (Davis, 2010, p. 1) must get acquainted with the ideas of the German philosopher Martin Heidegger. Heidegger can be "considered to be the most famous, influential and controversial philosopher of the twentieth century" (Davis, 2010, p. 1). Heidegger pondered concepts such as "the thinking of being; […] phenomenology; Dasein as being- in- the- world; […] being and time; truth as alêtheia […]; the work of art; Ereignis (the event of appropriation); the history of being; […] language and poetry" (Davis, 2010, p. 1).

For Heidegger (1926/1992), every human was a self-aware creature or a "Dasein" as an existential "Being," a creature who is absorbed in the world and who shares the world with and among the other Daseins and entities, such as natural things, things of value, and equipment, as a way of "being-in-the-world" in the existential spatiotemporal worldhood. A creature is related to the world primarily by its existential internal knowing as a form of Being, even though that state of knowing is invisible for the Dasein (Heidegger, 1926/1992). People and other creatures have knowledge and experiences about themselves and things in their external environments. Individuals attain information from stimuli from their internal and external worlds and that content is turned into experiences by mental operations.

What this content in experiences is, what kind of features it has, and how it is attained and processed by a cognizing creature has been extensively researched. This is especially the case regarding perceptual experiences, such as visual experiences, first primarily for philosophers, but then, along with the development of experimental and gestalt psychology and psychophysics, by psychologists and neuroscientists (Chalmers, 2010; Thagard, 2005). For example, Wertheimer (1912/2012) was interested in people's different experiences or "impressions" of motion, including motionless impressions and impressions of

partial motion and negative after-images, occurring in the presentation of certain series, types, numbers, or durations of stimuli in successive events. Wertheimer wanted to investigate what was psychologically received in "illusions of motion" (1912/2012, p. 2). He then experimentally studied with manual devices such as a stroboscope, an optical diaphragm, wooden slider frames, and cardboard sheets, the simultaneous and successive stages of motion, solitary, partial, and optimal motion, transitions of motion, how variations in object arrangement and their other properties such as brightness, speed, size, and color affect the perception of motion, and how attention, fixation, and additional objects participate in the perception of motion. Wertheimer (1912/2012) also supported the existing argument that certain Gestalt impressions are made possible by neurophysiological, higher-level central brain processes. However, what is relevant to the context of this thesis is Wertheimer's suggestion that mere stimulation and excitatory activation of neuronal loci and their "associative connections" is not enough to explain the experience of motion, but this phenomenon also requires the existence of some particular, psychological "transverse and holistic processes" (1912/2012, p. 78).

Wertheimer, along with Koffka and Köhler, was a member of a group of German psychologists who began a psychological movement to study perception at the beginning of the twentieth century, which is called the Gestalt-Theorie (Koffka, 1922). According to Koffka (1922), in Gestalt-Theorie there are three concepts involved in every psychological system: a sensation that corresponds to a stimulus, association that connects memories into meanings, and attention that affects how clearly a sensation is experienced. Later research has presented several examples that suggest that numerous complex, psychological processes affect how information from external stimuli that arrives at the sense organs are perceived and experienced as something meaningful (Lindsay & Norman, 1977). For example, pattern recognition has been found to be based on matching with a template scheme, where the processing is both data-driven and conceptually driven, with these processes usually occur simultaneously (Lindsay & Norman, 1977). This means that how something is interpreted also depends on the "conceptualization of what might be present" (Lindsay & Norman, 1977, p. 13), whereby the interpreter, for example, when interpreting an artwork, uses their existing knowledge and assumptions of the perceived artwork and what its meaning is expected to be, thus improving the quality of the total information analysis that leads to a perceptual experience (Freeland, 2001; Lindsay & Norman, 1977).

With the perception of objects and their properties, individuals can be in immediate and "direct contact with the world" (Gendler & Hawthorne, 2006, p. 1). However, at the same time, it often takes time and effort to make cognizant and sense-making interpretations of stimuli. In addition, perceptual experiences are easy to errors, and there can be also illusions and hallucinations of things that do not exist in the actual world (Gendler & Hawthorne, 2006; Lindsay & Norman, 1977). Perceptual and thinking processes are often unconscious, but they can be studied by the means of studying conscious experiences, often those that display

distortions, errors, and biases in perception or reasoning via verbal explanations or other behaviors (Kahneman, 2011; Lindsay & Norman, 1977).

### 1.3.2 Thinking

The cognitive scientific approach supports that "thinking can best be understood in terms of representational structures in the mind and computational procedures that operate on those structures" (Thagard, 2005, p. 10). The theory of the human-information-processing system as a problem-solver, presented by Newell and Simon (1972), has served as a major, foundational theory in cognitive science regarding thinking. According to the information-processing theory of thinking, or what is also called information-processing psychology, internal mental representations are symbol structures "with definite properties on which well-defined processes can operate to retrieve specified kinds of information" (Simon & Newell, 1971, p. 148). This theory pertains to phenomena such as information processing, temporal lengths of processing, inputs and, outputs in short-term and long-term memory, and memory capacities for storing symbols. The human-information-processing system is adaptive to the requirements and demands of the external task environment, although it also has its limited capacities (Simon & Newell, 1971; Newell & Simon, 1972).

The theory of human problem-solving in an information processing system has been applied in vast areas of research interests, ranging from learning and education to research about concepts, short-term memory, perception, and language (Simon & Newell, 1971). This kind of theory, one which is based on information and how it is embedded in human cognition, along with its properties and processes, is also required to create a coherent explanation of a conscious experience (Chalmers, 2010).

### 1.3.3 Experiencing

A conscious experience is a complex concept (Chalmers, 2010) that is based on information structures with different types of phenomenal and conceptual knowledge contents, all of which are complex (Chalmers, 2010). A creature can be said to be conscious "if there is something it is like to be that organism", and similarly, "a mental state is conscious if there is something it is like to be in that state" (Chalmers, 2010, p. 5). As Chalmers notes, "In general, any information that is consciously experienced will also be cognitively represented" (Chalmers, 2010, p. 22), meaning that for every perception, bodily sensation, emotion, and abstract thought experienced, there exist fine-grained structures and properties that are cognitively represented in the mind's information processes. Explaining experience as a fundamental feature that is as basic as any other fundamental property of the natural world, along with its underlying mental processes, and the reasons why and how experience exists in the first place, continue to be the key in perhaps explaining the mind and a central issue in any theory of consciousness (Chalmers, 2010).

"No question in cognitive science is more challenging, or more fascinating, than the nature of consciousness" (Thagard, 2005, p. 175). However, studying consciousness and conscious experiences is a very difficult endeavor, as there is no consensus about how consciousness works and what makes consciousness possible in the first place (Chalmers, 2010; Thagard, 2005). New theories of consciousness are being presented, along with new critiques and research questions (Chalmers, 2010; Thagard, 2005). For example, studying consciousness poses some simple and challenging questions (Chalmers, 2010). The easy problems are those in which it is possible to have at least an idea of how they can be explained with some standard methods and mechanisms. For example, it is quite possible to describe the system and mechanisms, how internal mental information content can be reported in verbal protocols, how external information modifies the information system in learning, or how information is integrated and utilized in brain processes. Hard problems are the ones that cannot be explained using those same methods (Chalmers, 2010).

### 1.3.4 Embodied and predictive mind

Conscious mental events and the emergence of representational information content require the existence of neural activity, although it can be argued that the conscious experience and the human mind is more than what happens in the brain (Beach et al., 2016). The mind can be seen as a dynamic activity that combines mental processes in brain and body, the internal and external, in physical and social environments. The mind and body are approached as one intertwined and situated agent, an embodied mind. Individual's cognition has extended to external environment through agency (Bermúdez, 2016; Clark, 1999; Clark & Chalmers, 1998; Fuchs, 2011; Gallagher & Zahavi, 2012; Rowlands, 2010).

Human brains control individuals motor movements, the tension and positions of bodies and limbs when humans gesture, touch, grab and move things, or when they move their legs and bodies in locomotion by running and jumping (Pinker, 2011). Even though it can be assumed that "the nature of cognition is strongly determined by its perceptual and motor processes" (Anderson et al., 2004, p. 1038), humans are also able to cognize abstract mental content, define goals, plan, control, and store information in their declarative memory about different strategies and actions to achieve those goals (Anderson et al., 2004). With these mechanisms, individuals can respond to different problem-solving events and sustain personal and cultural coherence, whether or not there were any actual changes in their external world (Anderson et al., 2004; Newell & Simon, 1972).

As Beach, Bissell, and Wise note, people use reasoning to estimate and avoid later "anticipated regrets," (Beach et al., 2016, p. 23) in a process called "decision-making" and which is based on certain decision standards. These standards consist of an individual's beliefs including causal rules, values like ethics, ideals, beauty, and goodness, and other normative rules along with preferences like wanting something at present and something else in the future

(Beach et al., 2016). These values and preferences can guide individual's further actions. For example, judging something as good can also make it seem interesting, desirable, and worth pursuing (Kant, 1790/2007). According to Clark (2013, 2016), brains can be seen as prediction machines or prediction engines that proactively "guess what is out there" (Clark, 2016, p. 27). In addition, they estimate likelihood and probability and correct errors in mental information in a continuous and circular causal flow during the processing of incoming signals from internal and external inputs as cues (Clark, 2013, 2016; MacPherson, 2017; Vance & Stokes, 2017). This processed information is matched, possibly by associated analogies, with memory-based prior information, expectations, and assumptions, to generate the most relevant and accurate predictions as representations of the world for every differing context (Bar, 2007; Clark, 2013, 2016; MacPherson, 2017; Vance & Stokes, 2017).

### 1.3.5 Information contents in mental representations

It can easily be assumed that because the mind is embodied, and because it experiences, feels, thinks, understands and predicts, learns, solves problems, and behaves in order to reach different goals in life, this has an impact on the kind of information content inside the mind's mental representations. The external physical and social world usually appear to have objects that have properties that are organized in a typical manner for those objects, describing the meaningful characteristics of the objects to which they are referring (Saariluoma, 1997; Siegel, 2016). These objects and their properties are mentally represented as situationally constructed concepts and their attributes, which are deployed and altered depending on the context (Brewer, 1999; Saariluoma, 1997; Chuard, 2018). Mental content is constructed of non-conceptual content, such as sensations, and conceptual content, such as thoughts (Brewer, 1999; Chuard, 2018; Pitt, 2020; Siegel, 2010). To have mental content means to also have beliefs and other mental states (e.g., hopes, guesses, experiences) about things (Siegel, 2010, 2017).

Phenomenal content of experience means a certain feeling or likeness of a thing, which provides a condition of satisfaction for that experience (Chalmers, 2006, 2010). For example, a subject perceives an apple as red and round and sweet, and when that apple is picked and bitten, the subject has in their experience a specific qualitative feeling with its distinctive phenomenal character of what it is like and what it feels like that the apple is red and round and sweet. There are several theories about mental content, how it is structured, and how that content's phenomenal properties relate to perceptions and thoughts, for example. Perceptual experience, especially related to visual perception, has often been used as an example to describe experience's phenomenology. However, visual or other perceptual experience can be understood as one part of an overall experience that can include several other components, such as kinesthetics, emotional, and even imaginative components (Siegel, 2006). This research is interested in the information content in the mental representation within the overall experience of "seeing" graffiti.

## 1.4 Short history of theoretical underpinnings related to research of cognition, mind, art and aesthetic experience

To understand and study the mental contents and phenomena such as the consciousness, the mind, experiences, and thinking, these questions must be approached from multiple levels of explanation and multiple methods that combine research about neuronal and psychological experiments and computational models of brain physiology, mental computations, development, evolution, and how the mind has adapted to the environment (Pinker, 2011; Thagard, 2005). In addition, many theories that have been proposed within aesthetics and by philosophers of art have played an important part in the development of philosophy and science of the mind, and vice versa (e.g., Danto, 1981). Thus, it is important to review how theories of art, beauty, and aesthetics have taken shape and contributed to the understanding of the human mind and experiences as mental phenomena.

Several philosophers over the past 2000 years and more have tried to capture the multifaceted aspects and definitions of art, aesthetics, and beauty. Some of them, mostly since the presocratic era—which displays the emergence of the new way of critical, scientific-based thinking, the Greek philosophy, and philosophy of art and that began approximately 500 years BCE—have also been key figures for modern psychology and the philosophy and science of the mind (Kuisma, 2009; Saariluoma, 1985). For instance, Homer's epoch Odyssey and Hesiod's poems are some of the earliest texts that held special importance for philosophers in ancient Greece and still do in current art, philosophical, and aesthetics research, as they can provide hints about how people experience and value art and beauty (Kuisma, 2009). However, much of the works and ideas of the earlier, presocratic-period philosophers have disappeared, remained only as fragments of their writings, or have not been captured in other than spoken stories in the first place.

The second period of Greek science, the "golden age of Greek philosophy" (Kuisma, 2009, p. 14), began with the Greek philosopher Socrates. Socrates' philosophical theories and the basis for the so-called Socratic method or Socratic questioning, which is a way to construct knowledge-based understanding and self-awareness in a dialogue between a questioner and a respondent as two human minds as moral agents (Seeskin, 1987), have been captured only in the writings of Socrates' student and follower Plato (Kuisma, 2009; Saariluoma, 1985). Plato, who can be claimed as "one of the greatest synthetic thinkers in the history of humankind" (Saariluoma, 1985, p. 69), was interested in different art forms ranging from tragedy to poetics, painting, and architecture (Freeland, 2001). However, he understood art as a skilled craft or "technê," as there was no term for art as an abstract concept as it is nowadays (Kuisma, 2009; Plato, 390 BC/2009). Plato had a critical stance toward art as he saw it as merely the artist's imperfect imitation or "mimesis" of unreal reflections of the human sensory world and nature (Freeland, 2001; Kuisma, 2009; Plato, 390 BC/2009; Saariluoma, 1985). In

Plato's thinking, technê and mimesis are combined in concrete forms of art, such as poetics and music, in something called "mimêtikê technê" and mimicking skill," which separates the skill of producing images and presentations from the skill of producing everyday artefacts" (Kuisma, 2009, p. 15).

A view that art can only replicate a playful phantasy that mimics ostensible reality, which the artist creates without having a true understanding of things, is clearly described in Plato's Politeia (390 BC/2009). Plato's critical view of art can also be illustrated with the following extract from Symposium (Plato, 360 BC/2000), where Socrates reminisces his conversation with the oracle Diotima of Mantinea: "instructress in the art of love" (Plato, 360 BC/2000, p. 21): "For God mingles not with man; but through Love. […]. The wisdom which understands this is spiritual; all other wisdom, such as that of arts and handicrafts, is mean and vulgar" (Plato, 360 BC/2000, p. 22). However, in Politeia (Plato, 390 BC/2009), Socrates notes that the role of art, in this case poetics, can be defended if it is found not only pleasurable but also beneficial for human lives. Beauty, in contrast, being separate from art, is a virtue that enables an individual to gradually gain an understanding that beauty exists not only in individual or general forms, or in external forms or internal minds, in one family of beauty within institutions and laws, or in beauty of the sciences and wisdom, but in "a single science, which is the science of beauty everywhere" (Plato, 360 BC/2000, p. 27). This absolute, divine beauty of realities can be seen only with "the eye of the mind" (Plato, 360 BC/2000, p. 28).

Socrates and Plato were, in many cases, interested in the informational and moral aspects of art, such as art's questionable ability to affect the audience's minds, as well as to exceed the perceivable, surface level of reality (Kuisma, 2009; Plato, 390 BC/2009). Some of Plato's ideas have also formed the basis of the foundational theories for modern psychology and cognitive science, especially in memory research (Saariluoma, 1985). For example, Plato's theory of knowledge contemplates issues such as perception and thinking, where perceiving is different from sensing, where "thinking is based on comparison of things [and] search for differences and similarities" (Saariluoma, 1985, p. 55), where the perceptual world is separate from the underlying world of ideas, and where memory and its functions facilitate the separation of the two. According to Saariluoma (1985), Plato recognized that mental information is sustained in a constantly changing system of memory traces or engrams, and that information can vanish because of the deterioration of an engram or mix and distort because information is associated with wrong engrams.

Aristotle had a different concept of beauty than Plato did. To Aristotle, beauty was "the perfection and harmony of kinds of forms" (Kuisma, 2009, p. 17). Form does not mean only perceivable shapes or other properties of an object, but "it presupposes a close correspondence between the arrangement and the functioning of any item," where form and "function are closely connected" (Lawson-Tancred, 1986, p. 14). Aristotle felt that art has an important meaning for humans not only because imitation is intrinsically natural and enjoyable for humans but because art can alter an individual's character and soul by affecting

their emotions; thus, it can be effectively used for education purposes to teach individuals to understand and infer the nature of things (Aristotle, 2009; Freeland, 2001; Kuisma, 2009). Aristotle's Poetica is an essential source for art theoreticians and aesthetics research, as it describes, for instance, the history of poetry, different objects, types and ways of imitation, definition of a well-constructed tragedy, the structure of a tragedy's plot, different stylistic genres and the balanced use of both clarity and unconventionality, and even psychological phenomena such as how a tragic story's audience recognize its characters and logic and how they emotionally react to the story's events (Aristotle, 2009; Kuisma, 2009).

Aristotle is probably the most important thinker of all times (Lawson-Tancred, 1986; Saariluoma, 1985). Besides his contemplations of poetics and tragedy, he devoted his philosophical investigations to various fields, such as logic, philosophy, ethics, and natural sciences; from, for instance, medicine and biology to physics, geography, rhetoric, and psychology, including studies about memory, consciousness, and cognition (Lawson-Tancred, 1986; Saariluoma, 1985). In fact, Aristotle has been named the founder of psychology as a science, and Aristotelian science can be called the basis of modern psychology (Saariluoma, 1985). Aristotle rejected the philosophical conceptions of Plato and began to ponder different philosophical and scientific issues from a new, presocratic perspective that Plato had discarded (Saariluoma, 1985). For Aristotle, the basis of scientific research and knowledge is empirical observation conducted from a third-person perspective (Lawson-Tancred, 1986; Saariluoma, 1985). The only somewhat valid source of reliable knowledge is the sensory information that can be obtained from the observation of single objects, where the knowledge from single observations is inducted into generalized knowledge that explains the reasons "why" for general phenomena, objects, and their attributes. This knowledge can, in turn, be used in the deduction to draw explanations for individual phenomena from general knowledge (Saariluoma, 1985).

In addition to describing the principles and theory of science, Aristotle studied several psychological phenomena, such as "the relationship between the soul and the body, cognitive questions, perception, memory and thinking, states of consciousness, animal psychology, the physiological foundations of psyche, psychology of social relations" (Saariluoma, 1985, p. 77). Aristotle developed the theory of perception, where the perception of an external object is born through bodily senses that affect the soul in a nonmaterial manner (Bloch, 2007; Saariluoma, 1985). Instead of the commonly used, translated word "soul," Aristotle used the Greek word "psyche," which should be understood as a broader concept than what is usually meant by terms such as soul, consciousness, and mind (Lawson-Tancred, 1986). According to the glossary created by Lawson-Tancred, the psyche is an "ideally, but impossibly, rendered 'principle of animation'" (Lawson-Tancred, 1986, p. 122). Aristotle regarded vision and sense of hearing as the most important senses, and the basis of a sensory perception can be found in the discrimination of two extrema (Aristotle, 1986; Saariluoma, 1985). According to Saariluoma (1985), Aristotle also pondered questions that are

typical in classical perceptual psychology, such as just-noticeable differences of sensory signals, and in attention psychology, such as selective attention and an ability to pay attention to two separate but simultaneous stimuli.

The theory about memory is still, in many parts, relevant for modern cognitive psychology, even though Aristotle recognized only long-term memory (Aristotle, 2007; Bloch, 2007; Saariluoma, 1985). Memory is also related to mental images created by imagination. Images are essential components in thinking, as they combine perception and memory and enable an individual to plan events and actions on an abstract, imaginary level. Thinking involves not only mental images but also the ability to make judgements, to receive, actively alter, and combine objects of thoughts in mental operations (Aristotle, 2007; Bloch, 2007; Saariluoma, 1985). Recalling something is having "knowledge and sensation without performing these actions" (Aristotle, 2007, p. 25), which can be interpreted as having something instantly in one's mind that has a resemblance to something that the individual has previously experienced or thought about (Bloch, 2007) without intentionally performing the cognitive action of remembering or reminiscing. Recalling is guided by laws of association, where one stimulus can activate other associated, similar, opposite, or commonly joint memories as representations of something else (Aristotle, 2007; Saariluoma, 1985).

Aristotle also defined the basis for dynamic psychology, where every action can be explained by inspecting its mechanisms and the underlying endeavors to obtain some goal or a future state, which is beneficial for the acting creature (Harré, 2002; Saariluoma, 1985). Thus, humans' goal-directed action is motivated by gaining pleasure and avoiding pain, which can come from, for example, fulfilling basic needs, sensual pleasures, glory, or philosophical contemplation (Aristotle, 1986; Harré, 2002; Saariluoma, 1985). Creatures' pursuit of experiences of pleasure and avoidance of experiences of pain are accompanied by "the assertion or negation of good or bad" (Aristotle, 1986, p. 208). An individual must choose from several action alternatives that aim at reaching a goal or a good or at least seemingly good "object of desire" (Aristotle, 1986, p. 214; Saariluoma, 1985). Aristotle also discussed affects, which, according to him, form "the basis of emotional life" (Saariluoma, 1985, p. 90) and include the whole scale of either positive or negative human emotional states, such as anger, fear, and joy (Aristotle, 1986). Affects also have a physical aspect, influencing the body in some ways, and a psychological or a dialectic aspect "in terms of its rationale" (Aristotle, 1986, p. 129; Saariluoma, 1985). This view, held by Aristotle, is still valid in the contemporary psychology of emotions (Saariluoma, 1985).

A fundamental issue in philosophy is the relationship between the soul and the body (Saariluoma, 1985). Plato promoted a dualistic view of the body and the soul, where they are understood as two strictly separate, divergent, and opposite substances, where the active soul is moving itself, whereas the passive body acts mechanically (Plato, 360 BC/2001; Saariluoma, 1985). However, according to Saariluoma (1985), Plato did support a view called psychophysical interactionism, where the body and the soul are in a constantly interacting relationship, bodily needs guide how the soul is attuned, and the soul itself is a force that moves the

body. Aristotle also held the conception that a living animal (including human) is composed of a soul and a body. However, for Aristotle, they are not opposites; instead, they form a joint, interactive entirety, a partnership of an "ensouled thing" (Aristotle, 1986, p. 161) where one part cannot be separated from another (Saariluoma, 1985).

Thus, questions about what the mind is, how it works, and the roles of the cognitive mind and body have been puzzling questions for philosophers, psychologists, and other thinkers since the ancient Greeks and before. There have been different philosophical positions regarding whether human knowledge is the result of innate thinking and reasoning or whether it is the result of learning and experiences (Thagard, 2005). The view which combined these two positions was presented by eighteenth-century German philosopher Immanuel Kant, in which he argued that "human knowledge depends on both sense experience and the innate capacities of the mind" (Thagard, 2005, p. 6). According to Kant (1781/2009), the mind entails faculties of cognition or logic which represent thinking and understanding, sensuous faculties or aesthetics which represent perceptions, sensations, and emotions, and faculties of will or desire, which are about approaching and avoiding and are based on laws of reasoning and nature (Kant, 1781/2009). Information contents that is processed in different mental levels involves semantic, emotional, and motivational components, reflecting these three faculties of the mind (Hilgard, 1980; Kant, 1781/2009). The faculties of the mind, which are based on cognitive, emotional, and conative schemas, can also be understood as vital aspects of mental life and its functioning, or as dimensions of experience, where processes of cognition such as perception, attention, language, and thinking create mental representations about the world, and where emotions give subjective meanings to situations and objects, and which together guide human actions (Hilgard, 1980; Jokinen; 2015; Saariluoma, 2020; Saariluoma et al., 2016).

Kant was also concerned about several other issues related to the mind, its conscious and unconscious processes, and mental contents, such as perception, apperception, conceptualization, categorization, and making judgments (Kant, 1781/2009; Saariluoma, 1985). Kant played a major role in modern cognitive psychology and in the philosophy and science of the mind, which investigate the innate processes of, for instance, how people perceive, recognize, label, experience, and react to beauty and other things (Freeland, 2001). As Carroll (2017a) noted, mental processes such as categorization and conceptualization are important in how works of art are apprehended and valued. When an individual sees a painting, it is first categorized as "a category of paintings" (Carroll, 2017a, p. 268) and then it is further evaluated whether the categorization is correct. This enables the individual who is viewing the artwork to "zero in on the purpose of the work which leads you to ask how well or badly the work has articulated or implemented its purpose" (Carroll, 2017a, p. 269).

Kant can also be understood as one of the key figures in forming the "basis of modern aesthetic theory" (Freeland, 2001, p. 8). As Freeland (2001) noted, Kant was interested in judgements of beauty and argued that all humans have a

universal sense of beauty (Kant, 1790/2007). Kant (1790/2007) proposed that an object's beauty is based on the viewer's judgment after a subjective feeling of pleasure or displeasure, or the so-called "taste." According to Kant, an object is judged as beautiful if it creates "delight or aversion apart from any interest" (1790/2007, p. 42). Thus, turning Kant's idea the other way around suggests that people should be able to be (aesthetically) interested in something even if they do not find it particularly beautiful. Kant held that "judgements in aesthetics are grounded in features of artworks themselves" (Freeland, 2001, p. 10), not only in individuals and their subjective preferences, and that there are some inherent, universal characteristics in objects, such as their form and design, which make them to be considered as beautiful or ugly.

Importantly, beauty, aesthetic experience, and art are three distinct concepts. Even though individuals can have a subjective and emotional aesthetic experience of beauty (Dewey, 1934/2005; Kant, 1790/2007), aesthetic experience is caused not only by works of art; artworks do not necessarily evoke even aesthetic experiences, and there are other aspects to experiencing art or having an aesthetic experience than just the dimension of its beauty or pleasure. In addition, what is considered "art" depends on several things. This has been partly negotiated in social discourses throughout different cultures and times. For example, according to Dutton (2009), humans seem to have some universal "art instinct" for creating and experiencing objects as works of art. An individual can instinctively label something as art (e.g. when an object demonstrates recognizable styles, when it has an individual and unique expression, if it is technically skillfully made, and if it provides an intellectual challenge and pleasure for its spectators). However, contemporary, post-modern art has challenged these traditional conceptions. Instead of approaching art based on its production or the instrumental skills of the artist, art has a double dimension "as a cultural system " and "as an agent of aesthetic experience" (Aguirre, 2004, p. 258). Thus, understanding art is foremost understanding "the system of social, political, aesthetic and cultural relations behind the work" (Aguirre, 2004, p. 257), as art should be understood as a part of a larger visual culture. According to Aguirre, in post-modern art, works of art can be defined as "cultural achievements" granted with "institutional status," (Aguirre, 2004, p. 258) rather than something that represents technical or stylistic skills of their artists.

Heidegger understood the work of art as an "allegory," (Heidegger, 1935/36/1976, p. 652) and art as "a way of questioning," where "there are works of art because art is, because art happens" (Dronsfield, 2010, p. 130). Instead of determining works of art as mere things, Heidegger explained how works of art are interpretations of their symbolic content, truth that "emerges into the unconcealedness of its being" (Heidegger, 1935/36/1976, p. 665). According to Heidegger a work of art opens up and makes visible an invisible, historical "world of beings" (Dronsfield, 2010, p. 132) and reveals "the otherness of the world" (Dronsfield, 2010, p. 135), depending on what a particular spectator decides to see in an artwork in "an operation of language and of philosophy, and not something that can simply be viewed in the work" (Dronsfield, 2010, p. 132).

However, art should not be taken as something that can reveal some ideal, absolute truth with a particular meaning that exists in some objective reality. They can reveal something for their spectators about the spectators themselves. Visual art and graffiti are made possible by using technology and technical tools (e.g., spray cans and marker pens) to produce different types of pictures, but they are not visual copies mimicking the world. They are questions, tools, or language as a semiotic system for putting some representational content that the individual possesses and that is normally hidden, or unconscious, on display in the individual's conscious experience (Dennett, 2017; Heidegger, 1935/36/1976; Noë, 2015, pp. 152–161). As Aguirre stated, "it is more than doubtful whether art work can really tell us anything more of what we were already disposed to say about it." (Aguirre, 2004, p. 260). In other words, what works of art can reveal for an individual are the meanings that the individual can construct from information contents in their mental representations.

Art as a term is difficult to define, as what is meant by art, its practices, and their symbolic values can vary depending on, for example, culture and historical era (Freeland, 2001). As Freeland noted, "ancient and modern tribal peoples would not distinguish art from artefact or ritual." (Freeland, 2001, p. xviii). Especially in the case of contemporary art, explaining and judging art often regards not only reviewing its dispassionate properties, such as its form, shapes, or composition, but also taking into account its symbolic content, which can be related to, for instance, some social, cultural, environmental, or political issues, institutes, values, norms and attitudes, contexts, as well as the artist's selection of unconventional materials. These can create various interpretations as well as evoke different, even opposite, emotions ranging from pleasure to disgust among its viewers (Danto, 1981; Freeland, 2001). Artworks can be understood as communication devices that transfer semantic information through codes, classifiers, and modifiers (Gombrich, 1963; Seeley, 2015). In this sense, art can be understood as a form of communication (Dewey, 1934/2005; Freeland, 2001; Saariluoma, 2012). Art has its own aesthetic language, where art's semantic meaning becomes comprehensible for spectators in their thinking, which proceeds as iterative, hermeneutical reflections (Gadamer, 1977).

According to Smith (2017, p. xi): "the aesthetic dimension of an object or performance is that aspect of it that we value for its own sake," which can be "its beauty or sublimity" but also "its charm, quirkiness, humour, grotesqueness, or any of an indefinitely large number of properties that we are able to savour in and of themselves." Thus, an aesthetic thing evokes a set of emotions that individuals experience when they interact with an object or event, creating something that can be called an aesthetic experience (Carroll, 1999). Art can be a source of an aesthetic experience, which is also a complex phenomenon (Smith, 2017). For example, an aesthetic experience does not necessarily include only positive emotions because an individual can be "repelled, disgusted, even sickened by certain works of art" (Danto, 1981, p. 92). Also, aesthetic properties, such as beauty, can be attributed to many other things and artefacts than just to works of art, and aesthetic experience can be experienced in even the most

ordinary ways of living, in everyday places and activities (Dewey, 1934/2005; Smith, 2017). As Smith explained, the aesthetic experience involved with matters such as the senses, emotions, ethics, and morals "is not confined to the arts but rather suffuses everyday existence." (Smith, 2017, p. xiii).

In art, then, the character of the everyday and the commonplace is uplifted into "something transcendental" (Danto, 2017, p. 59), where works of art with their various qualities can serve "as instruments of self-revelation" (Danto, 1981, p. 9). Also, art does not have to be considered as "beautiful," at least not in some typical, conventional sense that is often attributed to something being beautiful by an unversed individual. However, in time and with contemplation, when an individual begins to understand the work, it can turn into something that can be described as psychologically beautiful (Danto, 2017). Art can be characterized as "a historically evolving entity" (Carroll, 2017a, p. 273), something that expands awareness of both individuals themselves and of the world around them, whether it was about awareness "on legal agreements, […] on spiritual matters, […] status in a particular hierarchical social world" or "on the artifice of gender roles" (Freeland, 2001, p. 207). Importantly, engaging with art can equip an individual with many emotions, values, and "the possibility of joining the conversation of culture" (Carroll, 2017a, p. 259). According to Carroll (2017a), an aesthetic experience in art emerges when the experiencing individual is "attentive to the ways in which a work's point of purpose is embodied," and where the individual is considering "the formal, the expressive, and the aesthetic qualities of a work of art" (Carroll, 2017a, p. 258). Thus, art can also be understood as "a special form of sensuous, embodied meaning-making," which can also have "cognitive, moral, and political dimensions" (Smith, 2017, p. xii).

Art differs from and cannot be reduced to science, such as cognitive science, because it does not have strict natural laws, which can be used to predict or explain why and how art has the effects it does (Danto, 2017; Freeland, 2001). "Works of art need to be interpreted" (Danto, 2017, p. 54), and there can be numerous interpretations that can be influenced, for instance, by the cultural background and socio-temporal moment of the interpreter (Danto, 1981, 2017). Looking at an artwork such as painting involves mental activities and phenomena such as "interpretation, meaning" and "embodiment" (Danto, 2017, p. 55). Art can give meaning to things "in terms of human life" (Danto, 2017, p. 55), which is different from the meaning that can be obtained from science and scientific terms. Yet, there are certain special phenomena that are common to all art (Freeland, 2001).

For instance, as Freeland noted, "people value art and passionately pursue its creation and collection." (Freeland, 2001, p. 208). How a work of art is experienced and valued, however, can depend on many things, such as the existing attitudes, knowledge, and interests of the spectator (Gartus & Leder, 2014; Gartus, et al., 2015). Valuation of art can depend on whether the work of art exists physically or as a memory (Marsh & Hick, 2014; Schacter, 2008; McCormick & Jarman, 2005). It can depend on the types of multisensory experiences that experiencing art evokes (Joy & Sherry, 2003; Kirk & Freedberg, 2014). Art

experience and valuation can also depend on the context and physical place where the artwork is experienced, such as in a museum versus on the street, and whether it is legal or illegal art (Bloch, 2016; Chmielewska, 2007; Ferrell & Weide, 2010; Gartus et al., 2015; Kirchberg & Tröndle, 2012; Ong, 2016). For example, valuation and experiencing graffiti can change because of removing graffiti from its original places on the streets and from narratives of graffiti writers and their everyday lives and presenting it in different physical and social contexts, such as within art galleries (Cresswell, 1992; Gartus & Leder, 2014).

To conclude, beauty, art, and aesthetics, in the sense of aesthetic experience, are different concepts, even though they are often related and even mixed up in laypeople's everyday conversations. Even though, presumably, art is not something that can be defined in strict scientific terms, research about beauty, which is often related to values and preference; about art, which is related to meanings derived from artwork's perceivable forms and symbolic content; and about aesthetic experience, which is related to senses, emotions, and embodiment, can also be valuable sources for scientific research. Findings from scientific research can also aid in further developing theories of art and aesthetics. For example, Carroll noted how "experiences have content. So, if one is going to characterize what an aesthetic experience is, one should specify what its content is." (Carroll, 2017a, p. 258). In this sense, because this research aims to specify the mental information content in graffiti art experience, it is also characterizing what a graffiti art experience is.

Cognitive science is a multidisciplinary field that draws from disciplines including evolutionary psychology, neuroscience, linguistics, philosophy, sociology, and computer science, or any other scientific discipline or approach, to create an integrated framework that can explain the information processes of living creatures, as well as of artificial intelligence and robotics (Bermúdez, 2016). Cognitive science aims to describe and explain thinking in problem-solving mostly, and learning in computational similes. It further aims to identify how internal procedures and states of different natural or artificial living or inanimate systems, such as the mind, can result in complex thought and behavior, such as good or less-favorable decisions (Bly & Rumelhart, 1999; Thagard, 2005). A multidisciplinary field of science, such as cognitive science, does not need to limit its epistemological groundings to specific domains. It can also draw from other disciplines, such as art theory or aesthetics. This is if they can provide necessary and useful knowledge to help create an explanatory framework that is good enough for the research purposes, such as when investigating mental contents in graffiti art experience.

## 1.5 Previous approaches to graffiti

In order to investigate mental contents in graffiti art experience, it is necessary to describe what is meant by "graffiti" and "graffiti art". Graffito, or its plural form

graffiti, can be defined as globally spread cultural artifacts and forms of visual communication designs (Brighenti, 2010; Lewisohn, 2008; Ross, 2016; Wacławek, 2011; Young, 2005) that are created by using special technique and tools, such as spray paints and marker pens, on different surfaces in urban cities (Avramidis & Tsilimpoudini, 2017; Ross, 2016). Graffiti as visual forms of expression have particular aesthetic styles and typically include characters, often taken from the popular culture (Avramidis & Tsilimpoudini, 2017; Lombard, 2013; Ross, 2016), and letters, which are usually the pseudonyms or "tags" of their creators (hence graffiti producers often call themselves graffiti "writers"). From simple tags and fast made "throw-ups" to more complex "pieces" or "masterpieces," graffiti are often made illegally on different street surfaces and in public places where the presence of graffiti forms interactive relationships between those socially shared spaces of the city and the graffiti culture (Avramidis & Tsilimpoudini, 2017; Brighenti, 2010; Ferrell & Weide, 2010; Lombard, 2013; Ross, 2016).

Graffiti writing, as writing one's name or short messages on the surfaces of public places, is not a new phenomenon. Examples of unofficial wall markings as a form of ancient cultural practice that has prevailed until the appearance of modern forms of wall-writing can be found from the prehistoric era to middle ages to present times (Baird & Taylor, 2016; Nash, 2010; Ragazzoli et al., 2018; Young, 2014). As Young (2014, p.) noted, even "for decades before modern graffiti came into existence, tourists wrote their names at places they were visiting," and soldiers on tour "wrote messages such as 'Kilroy was here'." As Alvelos described, writing graffiti is "an inherently human activity" (2004, p. 185).

Writing or producing graffiti is, in itself, a physical, performative act and a corporeal event that requires skills and mastery of learned graffiti techniques and styles (Ferrell, 2017; Noland, 2009; Rowe & Hutton, 2012). The act of producing graffiti creates an experience with a variety of sensations and emotions (Noland, 2009; Rowe & Hutton, 2012). In addition, street-based images, such as graffiti, can evoke aesthetic emotions, such as appreciation of beauty, awe, or disgust, in a similar way that artworks inside galleries can (Young, 2014). Reasons for negative emotions can vary, but one possible explanation is that graffiti, like street art, can be felt negatively because of its illegal and anarchistic nature. As Young argued, "street art is often viewed through a prism that foregrounds the artwork's situational illegitimacy and its threat to property ownership and authorship." (Young, 2014, p. 121). Presumably, such imagined threats can alter how individuals judge and value unsanctioned forms of visual products or works of art and their artists, not only in the case of street art but also in the case of graffiti. According to Hansen (2017), the public's responses toward graffiti can be more often accompanied by feelings of revulsion and anger, as graffiti is something that is produced without permission, forced on the public to see, and challenges the value and coherence of the public community. With the creation of their physical graffiti works, graffiti writers ground themselves in places and claim their own territories (Brighenti, 2010; Dickens, 2008), which can be understood as taking something away from other dwellers in those same places.

One way to characterize graffiti is through its temporal existence or ephemerality, as graffiti typically exists only for a short interval before they are erased or "buffed" by graffiti cleanup authorities in the form of whitewashing as negative city curating (Hansen, 2017), or written over by other graffiti writers (McAuliffe & Iveson, 2011). In this sense, graffiti is in accordance with the fast pace of other forms of objects and/or entities in the urban environments in which graffiti typically appear, such as frequently changing visual advertisement signs, fast-moving transportation, and underground trains, or people who move and travel quickly between their homes, places of business and places of leisure. However, there also exist long preserved, historic works of graffiti that have either maintained in their original forms or have been rewritten or restored to resemble their original versions, which contests the view that all graffiti, even the contemporary ones, are ephemeral by necessity (Frederick & Clarke, 2014; Ragazzoli et al., 2018).

Graffiti is a culture with its own social norms, practices, goals, codes, terminology, and aesthetic language or style (Avramidis & Tsilimpoudini, 2017; Fransberg, 2018; Wells, 2016). Graffiti are letters, writing, and images that, like street art, can also contain narratives and metaphoric meanings (Stampoulidis, 2016, 2019) that can be expressed as a form of polysemiotic communication that combines socio-culturally dependent signs and multisensory, embodied actions (Stampoulidis et al., 2019). Graffiti culture entails controversial acts and performances that often challenge the surrounding society (Ross, 2016; Neef, 2007; Bowen, 2010, 2013). According to Dickens (2008), graffiti writers have often been perceived as challenging the limitations of the city's physical settings with their concrete actions. They are challenging also attitudes, norms, and democratic participation in society and the art world (Dickens, 2008). Also seeing or experiencing graffiti as a viewer or a spectator can be understood as a bodily experience in which the spectator uses their bodies, sensations, and knowledge to understand graffiti, its marks of physical performances (Bowen, 2010), and the intended message of the graffiti writer that is embedded in the graffiti object (Schacter, 2008).

Graffiti can be described as "a systematic, stylized, and personalized form of illegal wall writing by members of a geographically dispersed, though socially cohesive subculture" (Bloch, 2016, p. 444). However, as Brighenti (2010) describes, graffiti writing is a practice "about whose definition and boundaries different social actors hold inevitably different conceptions." (Brighenti, 2010, p. 316). Writing graffiti has typically been an illegal activity but currently, a lot of graffiti is created in legal locations. Thus, some scholars have proposed this shift from illegal to legal graffiti as an era of *post-graffiti* (Ross, 2016). Since the emergence of modern forms of graffiti in "American cities such as Chicago, Philadelphia and New York" (Young, 2014, p. 2) in the 1960s and 70s, or what Lombard (2013) calls *hip-hop graffiti*, graffiti has gradually been incorporated into the worlds of mainstream media, advertising, and art, which has changed its aesthetic and political meanings.

There are differences between experiencing graffiti and other designed visual products. For example, in visual marketing material, it is important that the text is written in a font that is clear and readable for as many people as possible, as the viewers are also potential consumers and the aim is to communicate to as many potential consumers as possible. By contrast, in graffiti, graffiti writing "appears as an interstitial practice" (Brighenti, 2010, p. 316) that resists the boundaries of established social fields, such as art and design, law, authority, politics, or market and merchandise. Noticeably, graffiti writing can be understood as a form of resistance or an endeavor of writing territorial boundaries, but it can also be taken as a positive form of aesthetic study of the graffiti writer's signature, its techniques and styles, and the development of graffiti writers themselves, including their skills and identities (Brighenti, 2010). Thus, these written studies of signatures can simultaneously "both reveal and conceal" (Lombard, 2013, p. 179) something about their writers. However, as a result of such aesthetic study, where writers are cultivating their letters into more unique styles and forms, graffiti letters and their meanings can often become apocryphal or illegible to outsiders of the graffiti culture (Brighenti, 2010; Gartus et al., 2015; Lombard, 2013).

Nevertheless, graffiti often portrays familiar characters from popular culture which are recognizable to many people, whether or not they are "insiders" of graffiti culture (Lombard, 2013). As suggested in Article I, this technique can be understood as a way for graffiti writers to connect cultural narratives of their subculture to larger cultural master narratives (McAdams, 2017; Singer, 2004), either consciously or unconsciously. Graffiti-inspired visual style has also become increasingly popular in marketing, where product designers purposefully employ cryptic and street-credible looks of urban art like graffiti in their ads or teasers to positively improve the product evaluation and experience, especially among youthful and "cool" consumers. This is known as the *art infusion effect* (Alvelos, 2004; Baumgarth & Wieker, 2020).

Concepts of graffiti, murals, and street art are often mixed and understood as synonymous. In some discourses, these two forms of visual expressions have even merged into *graffiti murals* (Kramer, 2016) but they can also differ from each other in several ways. For example, graffiti implies writing, from tags to pieces, and their imagistic qualities, whereas street art can be understood as everything else: paste-ups, stickers, stencils, sculptures, and even knitted and crochet works (Young, 2017). Even though graffiti and murals share many similarities, as they both can include images that are painted on walls in urban, publicly visible spaces (Tolonen, 2016), the two concepts might have different artistic motifs or themes and different social, political, legal, and economic incentives (Ross, 2016).

In this study, graffiti can be understood as visual artifacts or products that are designed for some purpose using special technology and where graffiti creators and spectators interact with and experience graffiti objects (where interaction is conceptualized as embodied experience; see Section 1.2 and Article V). These artifacts have aesthetic and other properties that can make them at least

partly "felt" similar to works of art (Articles I and III). Presumably, experiencing graffiti is similar to experiencing art.

### 1.5.1 Graffiti as art

Laypeople and even art historians who do not specialize in urban art might be familiar with works of graffiti-inspired street artists from Keith Haring and Jean-Michel Basquiat (Dempsey, 2003; Kimvall, 2014) to Banksy[1] and Blek le Rat (Merrill, 2015). However, an expert in the subcultural graffiti scene might nominate quite different individuals as authentic graffiti artists, naming such artists as Taki 183, Seen, Lee, Lady Pink, or Blade (Kimvall, 2014). As Kimvall (2014) notes, the art-historical narratives about graffiti art have, until this point, remained quite scarce and often somewhat contradicting. However, with a growing number of publications focusing on explaining and showcasing graffiti and street art with vast displays of artists and artworks, more information about graffiti is constantly becoming available (see Lewisohn, 2008; Schacter, 2013; Wacławek, 2011). In addition to these publications, knowledge about graffiti and artists is being shared at events and art exhibitions, academic seminars, conferences and panels, and many other kinds of forums.

There are many ways to approach and define graffiti. Graffiti can be considered as urban, architectural, or folk art (Austin, 2010; Ferrell, 2017; Schacter, 2016; Valjakka, 2016). According to Dempsey (2003), contemporary graffiti is part of the postmodern art era, as it often comments on societal and political issues. According to Austin (2010), graffiti art has roots in the development of modern art from the early twentieth-century dadaism, post-dadaism, and 1970s pop art and pluralistic art. Modern cities can create a feeling of alienation and estrangement (Pallasmaa, 1996), and graffiti writers as postmodern artists can be understood as not only criticizing and reconstructing but also reabsorbing into that urban world (Young, 2014). With graffiti, their writers are finding new ways to participate in the urban life as well as reclaiming their environments with visual collages by creating counteractive responses to the aesthetics of modernism (Lamazares, 2017; Schacter, 2008; Young, 2014).

A product can have aesthetic, sterling, and evocative symbolic properties that can make it be judged as a "work of art" by an individual (Dewey, 1934/2005; Dutton, 2009; Solso, 2003). However, whether the graffiti work can be called "art" in sociohistorical discourses requires that the work is considered art not just by its creator, or even by an experiencing subject, but also by other people, the surrounding society, art institutions, experts in graffiti art and art history, and other possible stakeholders (Heidegger, 1935/36/1976; Dutton, 2009; Kimvall, 2014). Whether or not specific graffiti is coined art in the postmodern world is based on a social agreement between different stakeholders within the so-called art world (Danto, 1964, 1981; Kimvall, 2014), as argued in Article I.

[1] At the time of writing this thesis, in the summer of 2021, Banksy's street artworks were displayed in an art exhibition in the Serlachius Museum in Mänttä, Finland.

Graffiti is similar to art in several essential ways. Art can reveal something about how the individual who gives it their attention experiences the world as it seems and how the work of art affects the "perceptions, emotions, apperceptions, and thoughts" of its spectator (Saariluoma, 2012, p. 50). Even though the definition of art and graffiti as art might remain somewhat problematic, it can be assumed that graffiti, too, can reveal something about its spectators and their consciously experienced and underlying unconscious mental contents.

### 1.5.2 Graffiti as technology

Different forms of art can also be understood as forms of technology, where different technological styles are related to the cultural views, values, and presumptions of individuals who create art, and which can be expressed in forms of speech, images, and behavior (Lechtman, 2006). As technology develops, so do artistic styles (Lechtman, 2006). Tools and interfaces to create art can also be understood as forms of technology that enable different "organized activities" (Noë, 2015). In context of graffiti art, tools such as spray cans or marker pens, and interfaces, such as walls or other vertical surfaces, can enable organized activities of creating graffiti. Graffiti writers use these tools and forms of technology to organize and express their artistic ideas and to convey different meanings and messages to the members of their subcultural communities via the graffiti artifacts that they create. Thus, art artifacts can be understood as a form of technology that allows artists and spectators to express their expertise and creativity, and to have and share information and experiences (Noë, 2015).

As Dennett says, works of art are "thinking tools" (Dennett, 2017, p. 3) that human minds have created. A bicycle can be understood as a technology that enables a person to quickly travel from one location to another, a cigarette is a technology that allows for the inhaling of toxic fumes including psychostimulants, and an artistic painting is a technology to produce, for instance, aesthetic experiences (Saariluoma et al., 2016). Similarly, graffiti can be understood as a technology or thinking tool that enables its spectators to have, for example, emotional experiences and intellectual contemplations, which can also create new meanings and awareness about the self and the world.

## 1.6 Construction of this thesis

This thesis is constructed so that it first explains what is meant by conscious experience and consciousness. This serves as the core for all subsequent explanations. It is necessary to first understand what is meant by conscious experience to then expand the explanatory framework to a larger picture of the mind, which itself entails consciousness, and to understand what role conscious experience can have in explanations of the mind. Then, after clarifying the mind as the representational, embodied mind that cognizes and makes predictions, this

investigation reverts back to the types of representational information contents of a consciously experiencing mind.

This order follows a logic that it is necessary to first understand a) what conscious experience means and b) what the mind means in the context of this thesis research in order to understand and explain c) the information contents in mental representations. But how does d) expertise fit into this equation? The reason becomes evident after first explaining the conscious experience, the mind, and the mental contents. In short, the assumption is that d) expertise is learning more numerous and complex c) mental information content to solve problems and achieve goals in life, and this learned information is about knowledge and skills that are stored in one's memory which, in turn, affects how individuals b) think, feel, desire, plan, and behave as they a) consciously experience things in different situations. This research constellation of this thesis is presented in Figure 1.

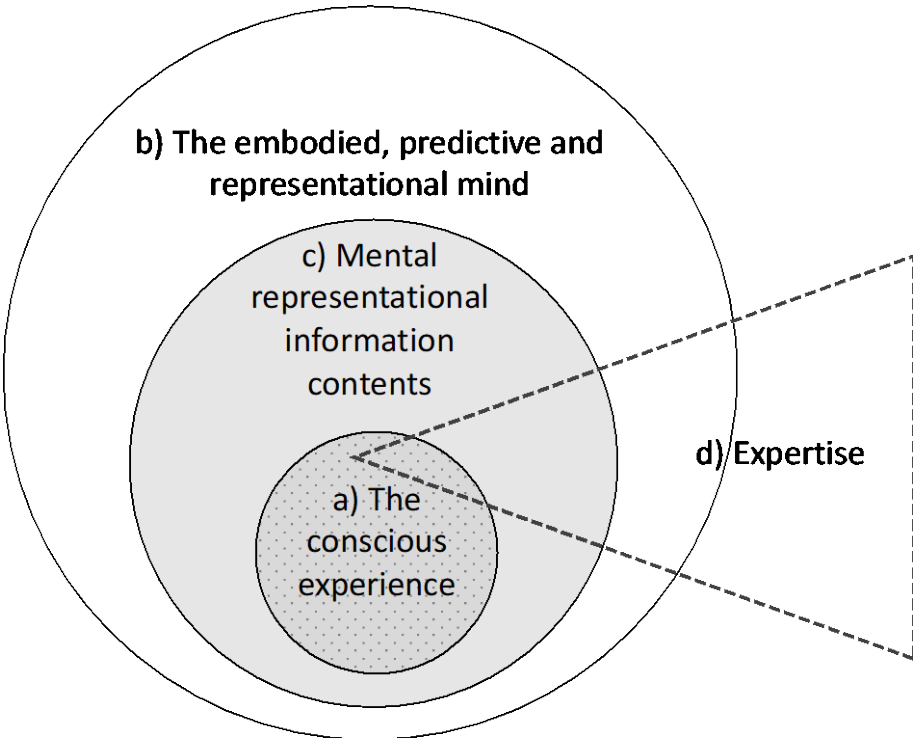


FIGURE 1 Research constellation of this thesis

As listed in Section 1.1., this thesis has three research questions: what are the information contents of mental representations when people experience graffiti art; do graffiti experts have different mental information content than laypeople; and what kind of differences exist in the mental content of laypeople and experts. To answer these research questions, it is necessary to introduce the explanatory framework and theoretical backgrounds first, which is done in Chapters 2–5. Chapter 2 introduces readers to the concepts of conscious experience as a conscious mental phenomenon, to mental processes of appraisal, apperception,

and restructuring. The text will briefly discuss the neuronal basis of consciousness and one possible explanation of the process of how mental information is processed at the neuronal level. Chapter 3 pertains to the mind and how it should be understood in accordance with human experience. The main arguments of this chapter are that the mind has representational content about something, it makes predictions and it is also embodied, where information can be extended, embedded and enacted in external world, in objects and actions.

Chapter 4 discusses in more detail the types or kinds of mental contents of experience including phenomenal content, conceptual and non-conceptual content, and additional 'subtypes' of mental contents, from Fregean and Russellian contents to indexical and centered worlds contents. The last theoretical chapter, Chapter 5, discusses expertise and its meaning in this research context. Chapter 6 presents the methodology and methods that are used in this research to study mental information contents in conscious experience, and explains how the heterophenomenological and content-based approaches, protocol analysis, the thinking-aloud method, and applied thematic analysis were used in experiments to study the mental contents of laypeople and graffiti experts. This chapter also provides a short discussion on trustworthiness and an introduction to the experiments. Chapter 7 presents the results of this thesis, with a summary of the articles and discussion on results. The final chapter, Chapter 8 summarizes the thesis and provides some suggestions for future research.

# 2 CONSCIOUS EXPERIENCE

An experience as a mental phenomenon is a complex concept with many philosophical and scientific problems (Chalmers, 2010). Perhaps it is impossible to ever know the phenomenal knowledge of what it is like for another being to experience sensations (Nagel, 1974). There might be some things related to the phenomenon of experience and experiencing, which is impossible to ever be solved for human cognition by only looking at the physical information. This is a problem known as the "knowledge argument" (Jackson, 1982; Lycan, 2012; Tye, 2000).

However, this does not mean that experience, as a conscious mental phenomenon, and contents of mental representations are things that should no longer be pondered, despite how hard or complicated the scientific and philosophical questions regarding experience might be (Valberg, 1992). New ideas and intuitions should be investigated and refined so that it is possible to create new theorems and laws, testable hypotheses, and explanations, which can then provide answers to questions of 'why' and 'how' (Saariluoma, 1997, 2005). This chapter will review some of the existing theories that help to understand what is meant by conscious experience as a mental phenomenon that has developed during the course of evolution, one that underlies a representational and computational information processing system, which produces human thoughts, emotions and behavior, and that is, at least in humans, based on neuronal brain structures and activities.

## 2.1 Experience as a conscious mental phenomenon

An experience can be understood as a subjective conscious phenomenon. It can be said that to experience something, to have an experience in the first place, requires having a conscious mental episode or a mental state (Montague, 2016). A being has conscious experiences and a conscious mental state, also called the subjective character of experience, "if there is something that it is like to be that

organism - something it is like for the organism" (Nagel, 1974, p. 436), and "when there is something it is like to be in that state" (Chalmers, 2010, p. 104). Thus, being a conscious creature means to have a sentient and experiential life and a feeling mind with its own point of view, with a certain qualitative or phenomenal character to experience its world, instead of just having some cognitive abilities (Revonsuo, 2017; Van Gulick, 2012). The existence as a conscious being and having an experiential sense of existence as being like something and feeling like something can be called phenomenological or phenomenal consciousness (Montague, 2016; Revonsuo, 2017). Phenomenal consciousness is the foundation for all other forms of consciousness and it consists of experiences that are subjectively felt by an individual (Montague, 2016; Revonsuo, 2017). Humans, as sentient, experiencing, and thinking creatures, have conscious minds, which are described by Revonsuo as follows:

> From the internal perspective, our conscious mind appears to us as a sentient being inside our head who looks at the world through our eyes, has perceptual experiences, feels the human body and its movements and its emotional states from the inside, and controls its behaviors with a free will. In the conscious mind, we experience our pains and pleasures, the happiness of our lives as well as the painful sufferings; our bodily needs such as hunger, thirst and sexual desire; our fears, loves, and other emotional states. We also have thoughts ceaselessly running through our conscious mind in silent internal speech, sometimes accompanied by mental images. Even when we are asleep, the conscious mind is not totally absent, but we experience private adventures in imaginative and sometimes bizarre dream-worlds. (Revonsuo, 2017, p. 2).

Experience and consciousness have sometimes been described as nearly synonymous. For example, this point is proven in this excerpt from Tononi et al. (2016): "Consciousness is [a] subjective experience — 'what it is like,' for example, to perceive a scene, to endure pain, to entertain a thought, or to reflect on the experience itself" (Tononi et al., 2016, p. 450). Consciousness is, widely speaking, about awareness (Lycan, 2012) and can be defined as a subjective experience of being aware of the external environment and one's own body, mental state, and perhaps more, having perceptions of the world and being able to react to stimulation in a normal, waking state (Lycan, 2012; Revonsuo, 2010). There can be different forms of conscious awareness, from sensory forms related to sensory organs, to cognitive forms related to thinking, believing, and so on, which vary according their dimensions, such as phenomenology, functional roles, and impact on one's awareness about objects and situations (Chuard, 2018).

To be conscious can be described as having a conscious state or a background condition that allows different kinds of subjective, phenomenal experiences for an individual. Conscious states can be states such as "perceptual experience, bodily sensation, mental imagery, emotional experience, occurrent thought" (Chalmers, 2010, p. 104) and others. Conscious states have phenomenal character of what it is like to be in that specific state (Chalmers, 2010). Unconscious states can be understood, metaphorically, as those temporary moments when the phenomenal lights of consciousness are "turned off" (Revonsuo, 2010). The content of consciousness can be described as "specific patterns of qualities that appear in phenomenal consciousness" (Revonsuo, 2010,

p. 73), such as the visual experiences of the roundness and redness of a tomato, tactile experiences like the sharpness of a needle, feeling pain upon stubbing a toe, or feeling happiness in the mind and the body (Revonsuo, 2010).

Understanding experience as a conscious phenomenon presupposes that mental experience has content that is information (Pitt, 2020; Siegel, 2016). Individuals constantly receive sensory information from their environments but only pay attention to some of it, and not to all of the information that individuals pay attention to reaches their conscious awareness and experiences (Lycan, 2012). Consciousness can be structured as having a center and its surrounding peripheral consciousness, where the phenomenal qualities appear more intense, clear, and detailed in the center than in its phenomenal, peripheral background (Revonsuo, 2010, 2017). In turn, the peripheral consciousness offers a spatial and temporal context for the more detailed content in center (Revonsuo, 2010, 2017). The center and the background are separated by the spotlight of selective attention, where in every turn of attention to a specific 'spot' in the periphery, that spot becomes clear and distinct. Thus, it is impossible for an individual to subjectively report what they experience in the vague background of consciousness (Revonsuo, 2010, 2017).

There are several types of attention but, in general, attention can be described as "the selection of some information for further, more detailed processing," (Revonsuo, 2010, p. 77) by amplifying and filtering out different information signals. Attention is narrow and an individual can miss things or changes in their environment if they fall outside the exact spotlight of selective or focal attention, even if there would be fairly dramatic or unexpected changes in front of them, as demonstrated in cases of inattentional blindness and change blindness (Lycan, 2012; Revonsuo, 2010). A shift in attention might change the focus of interest and conscious experience (Laarni et al., 2001) and how an individual perceives affordances and different possibilities to act (Noë, 2004; Tversky, 2011; Schnall, 2011). Humans can also somehow "fill in" their experiences for those parts of perception of which they do not actually receive sensory information (Lycan, 2012).

The higher form of cognitive processing where phenomenal images are produced as propositional mental contents (propositions will be discussed later), and where the mental content can be pondered, named and categorized, evaluated, planned and acted upon, can be called reflective consciousness or access consciousness (Revonsuo, 2010, 2017). Reflective consciousness is also a foundational premise for introspection and self-awareness, which is a third concept of consciousness (Revonsuo, 2010, 2017). Eventually, in normal subjects, the consciousness binds scattered information about the internal and external world into unified and 'smooth' perceptions and experiences so that the voices heard when an individual speaks is perceived as their own voice, their hands are perceived as their own limbs, they are able to move their limbs at their own will. An individual can see an object as a cup of coffee located in a certain direction from themselves and they can describe objects such as artworks and their own thoughts about themselves or those objects; they are self-aware and able to

associate themselves with just one personality or identity (Lycan, 2012; Revonsuo, 2017).

Piaget (1964/2003) suggested that in humans, the development of mental operational structures that are the basic constituents of knowledge, thinking and self-regulation, proceeds in four stages. The first stage is a "sensory-motor, pre-verbal stage" in the first eighteen months of a child's first life, where the basis for the representational knowledge is developed. It then proceeds into the second stage, where a child develops a "pre-operational representation" which is the beginnings of thought. The third stage presents the appearance of "concrete operations," where the child can reason about objects, such as their class, order, quantity, and object's relation to one another. In the fourth and final stage of development, the child becomes able to apply reasoning and "propositional logic" on abstract hypotheses in "formal or hypothetic-deductive operations" (Piaget, 1964/2003, p. s9). As Fox and Riconscente (2008, pp. 387–388) summarize, an individual's conscious experience is grounded in the metacognitive and self-regulatory mental abilities of being able to think about and control one's own knowledge and actions from the viewpoint of the experiencing self, and to compare it with viewpoints of other individuals and objects in the world. These mental abilities are mediated by language as a psychological and cultural tool in social interactions (Fox & Riconscente, 2008). Metacognition can be understood as an individual's ability to self-reflect or "to think about their own thinking and knowing" (Fisher, 1998, p. 2), which also enables an individual to become aware of and to pay attention to their existing knowledge, including knowledge about themselves, their thinking and learning strategies, and to direct and transfer this knowledge into new problem spaces in different contexts (Ericsson & Pool, 2016; Fisher, 1998; Halpern, 2013; Newell & Simon, 1972).

Many creatures can be said to have consciousness and conscious experiences. Different creatures can be understood as biologically unique organisms that, as some evolutionary biologists would say, are vehicles who pass on the immortality of their genes (Dawkins, 1976). These organisms exist and act in environments that have physical structures and laws such as three-dimensional space and temporality, gravity, and energy in different forms that produce different light intensities, sound waves, etc. These environments and organisms are, themselves, in constant interaction and states of change. The development of consciousness is suggested to be a biological adaptation that resulted from evolution, providing humans and other animals with intelligence and mental structures that enable sensorial and motor activities and, in humans for example, the capacity for inner mental representations of space and time (Baars, 1997; Maldonato, 2014; Pinker, 2011). These capabilities, in turn, have enabled humans to occupy their cognitive niches within their ecosystems, enabling them to anticipate future events and to cooperate with fellow humans and other creatures (Pinker, 2011). According to Baars (1997), "Consciousness appears to be the main way in which the nervous system adapts to novel, challenging, and informative events in the world" (Baars, 1997, p. 308).

According to Dennett (2017), evolutionary processes have gradually brought different features and competences into existence, such as colored vision or the mental ability to reason (which for humans has led to social norms and ethics). Evolution creates variations of different competences, where the competences that are the most beneficial for the creature to manage in its environment are retained and developed further. A simple creature does not need to understand or be conscious of why it is doing what it is doing in order to survive. Thus, what comes first in evolution is the competence that makes it possible for a creature or organism "to deal appropriately with the affordances of their environments" (Dennett, 2017, p. 101). The ability to comprehend and understand what oneself and others are doing only comes after competence. Comprehension is something that "is composed of competences" (Dennett, 2017, p. 94) and, like competences, comprehension and consciousness, which are separate phenomena, also come in degrees. Degrees range from the lowest level of "Darwinian creatures" who have fixed, inborn competences, to the highest level "Gregorian creatures" who are equipped with abstract and concrete thinking tools (Dennett, 2017, p. 99).

It can be argued that evolution "does not proceed by solving problems" (Zeki, 2009, p. 1). Evolution proceeds with the development of organisms that can avoid or minimize any potential problems in their lives by utilizing their thinking tools, biological and cognitive competences, and solutions, such as the ability to form concepts (Dennett 2017; Zeki, 2009). In most cases, organisms thrive to maintain balance and stability, make decisions, and behave so that they can adapt to any changes they might encounter. When the balance has been reached, which means more than just biological homeostasis, the organism tries to maintain that status quo (Tsakiris & Critchley, 2016). This is what Piaget (1964/2003) called the factor of equilibrium. "In the act of knowing, the subject is active, and consequently, faced with an external disturbance, he will react in order to compensate and consequently, he will tend towards equilibrium" (Piaget, 1964/2003, p. s13). In cases where the problems are unavoidable, the mind has to rely on self-regulatory problem-solving activities and engage in sequential information processing and transformational operations, which proceed in succeeding levels from one node of knowledge to the next in a state of equilibrium (Newell & Simon, 1972; Piaget, 1964/2003).

What makes the human consciousness and humankind's ability to think so special? The reinterpretation hypothesis presented by Povinelli and Bering (2002) proposes that "the vast array of spontaneous behaviors that humans share with chimpanzees […] emerged and were in full operation long before additional systems evolved to interpret these behaviors in terms of underlying mental states" (Povinelli & Bering, 2002, p. 116). These various animal and human behaviors were and still are produced and guided through "existing psychological processes, motivated by physiological, attentional, perceptual, and affective mechanisms" (Povinelli & Bering, 2002, p. 116). This hypothesis is similar to one proposed by Dennett (2017), that a representational system was superimposed on the existing system, making it possible for humans to interpret things with

their hidden meanings, causes, and unperceivable mental states (Povinelli & Bering, 2002).

This can be demonstrated in the differences between humans' ability to understand concepts via causality, versus chimpanzees' ability to only understand using analogies between perceivably detectable objects (Köhler, 1925/1959; Povinelli & Bering, 2002). Thus, every creature can understand the world from their perspective and from their perspective only (Dennett, 2017; Frege, 1948; Palmer, 2002; Povinelli & Bering, 2002). Individuals only have direct access to their own conscious experiences and even though individuals can try to infer the mental contents of other creatures, "the epistemological basis of my belief about the consciousness of other creatures is fundamentally different from knowledge of my own consciousness" (Palmer, 2002, p. 11). Different creatures comprehend the world from their own perspectives, according to their needs and goals, and so it might be quite impossible to understand the comprehension or the conscious experiences of, say, creatures of other species (Dennett, 2017; Palmer, 2002).

Evolution of neuronal structures that are the physical basis of consciousness as a representational system is one of the two evolutionary strategies that make humans flexible against environmental changes, in addition to the elements that are encoded within human genes (Maldonato, 2014). This can also apply to mental states, as they too can have, at least to some extent, a purpose that is intended to cope with its external environments and its constraints, as suggested by McGinn (1989). At least nine distinctive functions can be listed for consciousness, including 1) adaptation, learning, and problem-solving, 2) contextualizing conscious experiences, 3) access to a self and its interactions with conscious content, 4) prioritizing and controlling conscious goals, 5) recruiting unconscious routines by conscious goals, 6) decision-making and executive control, 7) error-detecting and editing, 8) reflecting, self-monitoring and modifying behavior through inner speech and imagery, and 9) optimizing organization and flexibility between responding unconsciously or habitually, or organizing knowledge in new ways (Baars, 1997, pp. 307–308).

According to Pinker (2011), thinking can be understood "as the transformation of one representation into another" (Pinker, 2011, p. 191), that underlies logical, statistical, and causal rules. According to Beach et al. (2016), normal, everyday thinking and the purposeful actions to which it leads, underlies cognitive abilities which are supported by the brain's subsystems of memory, perception, imagination, reasoning and language. Thinking itself can be conceptualized from different perspectives, viewing it as activation of neurons in brains, as semiotic use of symbolic or figurative pictures or words, or as flow of information as it is processed and transformed in different stages (Halpern, 2013). People use different types of thinking in their everyday lives, ranging from non-purposeful dreaming, to automatic thinking in routines. Thinking ranges from recalling list-like information, to effortful, evaluative, consciously controlled, goal-directed and critical thinking about a problem or a decision. Thinking can

be about the thinking process and reasoning itself, where the individual utilizes individual's cognitive skills, strategies, and values (Halpern, 2013).

Not all mental content is conscious. In fact, the argument can be made that much of the information contents in mental states or mental representations is unconscious content that is stored in memory, although this unconscious content does affect to what an individual experiences consciously. Considerations regarding mental states and unconscious mental representations that are stored in and retrieved from memory were presented by Ebbinghaus in 1885. Ebbinghaus (1885/2013) suggested that after mental states, such as sensations, feelings, and ideas, have disappeared from conscious experience, they are stored in the memory. The existence of these unconscious mental states can be observed in different ways by studying their effects on the subject's knowledge. Firstly, mental states can be recalled from memory by will, through the deliberate and voluntary act of remembering. Secondly, mental states can emerge from memory into consciousness spontaneously and involuntarily, either by consciously remembering them or by having them as unconscious reproductions which are brought about through "laws of association" (Ebbinghaus, 1885/2013, p. 155). Thirdly, some mental states from memory are employed in thinking even though the exact memories can remain unconscious. The conditions and processes from previous experiences accumulate in memory and occur and affect in thinking during other similar situations (Ebbinghaus, 1885/2013).

Ebbinghaus had important notions regarding memory and learning. According to Ebbinghaus (1885/2013), there are individual differences in memory and its functions, but they also depend on the content of what is remembered. Individuals especially have difficulties in remembering emotions, which are also often accompanied by bodily movements. How things are memorized is also is affected by how an individual devotes attention and interest to them. This has an impact on learning, which requires recurrent and sufficient number of repetitions, otherwise the learned mental content becomes difficult to be retrieved from memory or, as time passes, perishes completely (Ebbinghaus, 1885/2013).

Memory can be summarized as "the ability to retain and retrieve knowledge" about what things led to the current moment, and perception is "the ability to combine current sensory knowledge and knowledge from memory to produce an understanding" of what is happening in the present moment (Beach et al., 2016, p. 14). According to Beach et al. (2016), memory can be divided into immediate memory of the present and retentive memory about the past. Immediate memory works as a buffer of information for few, milliseconds length moments of current and just-passed "nows" that help maintaining the sense of the present and to keep the focus of attention. Retentive memory is about those moments that are pushed out of the immediate memory and the things a person has learned from their own past experiences or from instructed learning. Information in immediate and retentive memory are bridged by the working memory. Retentive memory is construed of procedural memory that stores information regarding acquired and often automatic motor and abstract skills,

and of declarative memory that contains semantic information. Declarative memory has further two divisions: episodic memory is about specific information, such as persons, objects, events, times, places, and their associated emotions, experienced episodes and narratives of several episodes. Another part of the declarative memory is the semantic memory that is about general information, such as "all ripe tomatoes are," and that are based on incidents first stored in episodic memory (Beach et al., 2016).

Human memory is the result of a dynamic, selective, interpretive, and integrating process (Foster, 2008). Memory as a mental phenomenon is not a computer-like information storing and retrieving process that produces an exact and permanent recording of past events or facts, but rather, a malleable and inaccurate reconstruction of existing memories, reasoning, and suggestions (Foster, 2008; Hirst, 2010) where memories "become integrated accumulations of past experience," (Hirst, 2010, p. 139) or schemata. Memories can change and/or mix with other memories. They are also affected by the present moment and by the anticipation of the future. They distort in social interactions and decay as time goes on, during which many are forgotten (Foster, 2008; Hirst, 2010; Sutton et al., 2010). Remembering is also an interactive event. It is formed by an individual's worldview, material and sociocultural knowledge and expertise, attitudes, attention and interests, mood and emotions, motivation, and goals (Foster, 2008; Hirst, 2010; Sutton et al., 2010). People can also imagine false memories (Foster, 2008; Sutton et al., 2010).

Even though it can at first seem quite strange why human memory is so malleable, it is suggested that there is a positive social function behind this phenomenon (Hirst, 2010). Social interactions create and increase strong bonds between people and individual memories are shared, influenced, and altered between speakers and listeners in conversations (Hirst, 2010). These shared memories are rendered into collective memories (or collective amnesia) through a "mnemonic convergence" (Hirst, 2010, p. 142), which can be understood as autobiographical memories of a community, and that can further shape collective identities of the members in that community. This process would not be possible if human memory was not flexible and adaptive to the creation of social bonds and collective identities during social interactions (Hirst, 2010).

Imagination is a necessary ability to make expectations of the possible different futures by combining the "knowledge about the past and present," and the ability of reasoning makes it possible "to use causal and evaluative rules to make sense of experience" and whether the expectations and decisions about the future are desirable (Beach et al., 2016, p. 14). Imagination involves mental images that are retrieved from the memory (Beach et al., 2016). Mental images contain images from all sense modalities, from visual imagery to sounds, smells, tastes, and feelings of touch and pain. Together with inner speech, these sensory images help an individual to imagine the future and what to do, with all their senses and in a more comprehensive way (Beach et al., 2016; Revonsuo, 2017).

Language gives individuals "the ability to acquire and use symbol systems to communicate to oneself and others" (Beach et al., 2016, p. 14), although

individuals also use methods other than language for communication (Astington & Baird, 2005). In the context of consciousness, raw experiences are encoded in language, which itself makes it possible to think more precisely and about more complex things (Beach et al., 2016). Using language also makes it possible to share thoughts, knowledge, experiences, and values, and to collaborate and create social bonds with other people (Beach et al., 2016; Gallagher & Zahavi, 2012; McAdams, 2017; Uzefovsky & Knafo-Noam, 2017). However, even though people use language to convey and externalize thoughts, thoughts and mental contents are not the same thing as language, nor can they be thoroughly expressed with language (Beach et al., 2016; Saariluoma, 2001). Also, information is processed in the brain in different formats, and might not always be translatable in the form of verbal communication. For example, when looking at visual artwork, the brain processes information from images in a visual format and it might not be possible to classify that information semantically, to describe the richness of the ambiguous signals, or to access or communicate that content via language in the first place (Zeki, 2009).

A conscious experience is a process that unfolds and develops during the time that the individual is able to keep their thoughts in their conscious awareness, ranging from seconds to minutes (Edelman & Fekete, 2012; Dale et al., 2012). The experience of time depends on what the experiencing individual is doing, what they are focused on, and how much information they are processing, since thinking about and solving more complex problems demands more active information processing (Dale et al., 2012). Emotions, their intensity and valence, as well as learning, memory, social interactions, and culture can also affect the experience of time (Angrilli et al., 1997; Grondin, 2010). For example, according to Leder and Nadal (2014) when experiencing works of arts, the content of the work can be perceived even in ten milliseconds and the style of the work in 50 milliseconds. Creation of the first impression in aesthetic judgment takes approximately 300 milliseconds, whereas more detailed aesthetic evaluation of the work begins approximately 600 milliseconds from the appearance of the aesthetic stimulus. The time that people generally spend at a work of art takes approximately 11-38 seconds, varying from three seconds to 13 minutes. Presumably, according to Leder and Nadal (2014), the longer the time spent at the artwork, the more the spectator is able to process information in several hermeneutical iterations and to create new thoughts, emotions, and experiences.

## 2.2 Appraisal, apperception, and restructuring of mental contents in experience

In humans, the evolution of consciousness corresponds not only to the need to survive in and adapt to their physical environments, but to their needs to interact with and understand others and their intentions, and by these means to enhance their own survival (Maldonato, 2014). People evaluate their environments,

objects, their own and others' possible actions and their impact against different relevant concerns in an appraisal process that results in representations of different emotions, thoughts and reactions, based on their subjective prior experiences and abilities of cognitive analysis and rule-based reasoning (Clore & Ortony, 2008; Moors et al., 2013; Saariluoma, 2005, 2012, 2020). In the appraisal process, information is applied and integrated to find an adaptive response that is important to that individual's well-being in any current or potential future situations (Moors et al., 2013; Scherer, 2009).

When an individual is making interpretations about the world and its objects, creatures and events, there is an evaluation of a situation and an emotional response to it. Understanding events, making inferences, predictions, judgements and decisions does not rely only on emotions, but it requires that an individual can makes sense of the situation and create meaningful explanations of, for example, what the external world is like, what is happening in that world, why, and imagining or dreaming what can happen next, and how the individual themselves or other creatures can react to possible events and probles that might lurk ahead in the future (Holyoak & Morrison, 2005). In other works, it requires a mental ability to make sense and understand emotions and perceptions in relation to information what the individual already possesses. As part of understanding, appraised emotions and sensory perceptions are integrated with learned concepts and schemata from memory into meaningful mental representations in apperception process (Kant, 1781/2009; Saariluoma, 1992, 2001, 2005; Saariluoma & Hohlfeld, 1994).

Especially in situations that require generation (or computation) of novel ideas and solutions, a creature can construct new mental representations, which can help them to explain ambiguous objects or events and solve and overcome problems. To solve problems and, in general, make sense of the world require an ability to think and reason. In everyday language, "thinking" can mean various phenomena (Holyoak & Morrison, 2005). It can mean making "explicit claims of what someone takes to be a truth about the world" (Holyoak & Morrison, 2005, p. 1). It can also mean "the mental construction of an action plan to achieve a goal," which is related to problem-solving, or "a kind of foresight," or a judgement of "the desirability of an option" (Holyoak & Morrison, 2005, p. 1). Thinking can also refer to a state where an individual is lost in their thoughts, unconscious of the happenings in the external world (Holyoak & Morrison, 2005). Holyoak and Morrison (2005) described thinking in scientific terms as "the systematic transformation of mental representations of knowledge to characterize actual or possible states of the world, often in service of goals." (Holyoak & Morrison, 2005, p. 2). Thus, thinking, which is not limited only to humans or even biological beings, is about something—a motivating goal or state of affairs (Holyoak & Morrison, 2005). However, as Holyoak and Morrison (2005) indicated, thinking is not necessarily optimal or desirable, but quite the contrary, thinking or reasoning is prone to flaws and stupidity.

Human reasoning is easily flawed and biased, deviating from logical, statistical or normative rules, and heavily dependent on the content and context

that people reason about (Beach et al., 2016; Kahneman, 2011; Pinker, 2011). People typically use some loosely applied mental rules and various shortcuts in those rules, rules of thumbs, or strategies in their reasoning to decrease their cognitive load, even though using quick and easy shortcuts has a risk of errors and biases (Beach et al., 2016; Halpern, 2013; Kahneman, 2011; Pennington, 2000; Pinker, 2011). Rather than exact conclusions, reasoning creates close approximations and decisions that efficiently serve people's purposes in life, as well as explanations for events and causations regarding their past, present, and future life expectations in a way that makes life appear to continue in a consistent manner (Beach et al., 2016; Halpern, 2013). For example, an individual's reactions to reoccurring social situations can become automatic and spontaneous, although these learned responses are not always correct (Pennington, 2000). However, if an individual is motivated and has enough knowledge to think about a matter at hand, they can engage in conscious, deliberative thinking (Pennington, 2000). Thinking, where mental representations are reconstructed into new constellations, can, in turn, lead to new solutions, ideas, and insights.

### 2.2.1 Appraisal and evaluation of emotions

There are two main theories for understanding emotion and how it occurs (Barrett, 2018). The basic emotion approach proposes that "an emotion occurs in response to evocative stimuli in an obligatory way," whereas the causal appraisal theories propose that "an emotion occurs after an evaluation of the stimuli's significance" (Barrett, 2018, p. 33). According to Barrett (2018), these two approaches can be grouped as classic theories of emotion, as they share a few similarities. In classic theories of emotion, an emotion is an abstract construct of a category of innate and universal events, where emotion categories, such as anger, happiness, and disgust, are independent of the perceiver. Emotion category entails a somewhat stable biobehavioral way to perceive, behave, and physiologically react to "a recurring evolutionary challenge" (Barrett, 2018, p. 33) in the lived world. An emotion category "has its own dedicated neural circuit" where certain neurons are activated in "a response to a stimulus" (Barrett, 2018, p. 33), and emotional categories can be altered with psychological processes such as attention or appraisal (Barrett, 2018).

Modern appraisal theories propose that "most, but not all, emotions are elicited and differentiated by people's evaluation of the significance of events" (Moors & Scherer, 2013, p. 135) and by the importance of stimuli for their wellbeing, welfare, and survival in an automatic and fast mental process, called appraisal (Ekman, 2018; Moors & Scherer, 2013). Appraisal has a causal role as both "a typical cause of emotion" and "the core determinant of the content of feelings" (Moors & Scherer, 2013, p. 135). During an appraisal, when an individual is making evaluations and inferences of a situation and stimuli, there are a number of changes in several organisms' subsystemic components including somatic, physiological, motor, emotional, and motivational components (Moors et al., 2013). These components are exchanging feedback and

are shaping each other, along with the related attitudes and representations, in a continuous and iterative process that underlies computational, associative, and perhaps also sensory-motor mechanisms (Clore & Ortony 2008; Cunningham & Zelazo 2007; Moors et al., 2013). This type of evaluative, cognitive-emotional-behavioral process that involves an appraisal of objects and events in cognitive cycles can be understood as an iterative-heuristic process.

There are several factors that affect the results of a subjective appraisal process: to what type of experiences and behavioral tendencies an individual has once the emotion stimuli have been detected, even though the picture of how different emotional inputs are evaluated and how they lead to certain responses is far from clear (Fox et al., 2018). For example, in the case of prosocial behavior, Keltner et al. (2014) hypothesize that the appraisal is affected by intrapsychic processes that are comprised of individual-level characteristics such as personality/ temperament, intuitive biases, perceived benefits for the self, and the guilt or cost of not acting prosocially. Appraisal is also affected by dyadic, interactive, and interpersonal processes consisting of perceived connectedness to the receiver of the prosocial actions, involving ingroup and outgroup biases, and competition (Keltner et al., 2014). Appraisal is affected by prosocial contagions, gossip, maintaining or loss of reputation, and punishments in group level within one's close social networks. Appraisal is further affected by mechanisms within the broader context of the cultural level, including factors such as socially coordinated norms, practical, moral, and aesthetic values, and religious beliefs (Keltner et al. 2014; Saariluoma et al., 2016).

It is important to note, that the experience differs between what is felt immediately during different phases of the appraisal process (which should be understood as a continuous and iterative process) and after appraisal (as in recalling appraisal and emotions from past moments) (Ellsworth, 2013). Appraisals between different individuals cause subjective experiences, physiological responses, emotional expressions, and action tendencies that vary from one individual to another. The outcomes and their differences of an appraisal of other's situation depends on several factors, including the novelty of the situation, the information available to the observer, whether the situation is appraised as neutral, positive, or negative, and regarding differences in subjective psychological states between the observer and the other (Ellsworth, 2013; Wondra & Ellsworth, 2015).

Appraisal theories are about experiencing different emotions and about how people conceptualize feelings into recognizable emotions. The content of the appraised emotional experience can be rich and highly nuanced even without the appraising subject holding linguistic labels for the specific emotions that are experienced or other content (Ellsworth, 2013). However, the language and categorial words that one possesses can affect how the experience and evaluations are verbally expressed in introspection (Ellsworth, 2013). As Pinker notes, "It is notoriously hard to capture the concepts that underlie the words in our language" (2011, p. 184). The models of appraisal "propose a substantial and elaborate appraisal process that dynamically unfolds over time, and suggest that

intermediate cognitions lead to an emotional response" (Fox et al., 2018, p. 404). Appraisal activates emotions, which have an essential role in defining what is important and motivating, what is dangerous or safe, and what to pursue and what to avoid (Pinker, 2011; Saariluoma, 2005, 2020). Thus, the function of emotions and motives is to detect incongruities with an individual's current state and their desired goal states, and impact behavior to reduce the differences between those two states (Pinker, 2011).

There are other theories of emotions, for instance, the theory of constructed emotion, which "proposes that an instance of emotion is an event that your brain constructs to make meaning of sensations" (Barrett, 2018, p. 34), and "the brain achieves this meaning-making […] using embodied conceptual knowledge that can be remembered from past experience within its vast network of connections" (Barrett, 2018, p. 34). According to this view, the existence of an emotional instance depends on the emotion conceptual knowledge that the individual possesses. The brain does not just react to stimuli, but perception and experience, meanings and situated actions ensued from preparing for action as the brain anticipates signals and predicts and constructs models for the body to act in the world in an efficient manner. This theory is interesting, as it considers predictive processes and situated, embodied cognition as essential elements in constructing meanings of multisensory experiences and emotions. However, there are several disparities between the theory of constructed emotion and classical views of emotion (see Barrett, 2018, pp. 39–40), which are also in contrast with the views presented in this thesis.

#### 2.2.1.1 Emotions and motivation

Emotions can be understood as temporary, parallel emotional episodes with conscious feelings and unconscious and automatic recursive processes in which appraisal emerges, for example, when evaluating a work of art (Baumeister, 2007; Frijda, 2008; Moors et al., 2013; Moors & Scherer, 2013; Silvia, 2005a; Solso, 2003). Emotional episodes consist of several components from cognitive appraisal components to motivational, somatic, motor, and subjective feeling components (Meuleman et al., 2019; Moors et al., 2013; Moors & Scherer, 2013). Emotions have strong impact on individual's cognizing, bodily reactions and behavior (Tooby & Cosmides, 2008). Emotional states are feelings that individuals experience during certain moments, which comprise four main dimensions: *intensity* or arousal or density; the *temporal extent* from rapid reactions to longer-term moods and attitudes; a particular emotional content that is defined by a certain quality or *theme*, such as joy or anger; and *valence*, which is the positivity or negativity of an emotion (Ekman, 2018; Moors & Scherer, 2013; Saariluoma, 2020). The contents of emotions are stored as emotional schemas in memory where they are retrieved during perception, remembering, and construction of representations (Saariluoma, 2020).

Emotions are different than affect, which can be defined as a simple feeling or reaction of approach or avoidance (Baumeister, 2007). Izard (2007) suggests

that there some basic emotions exist that have evolutionary origins and which are prompted automatically to a perception of some stimulus . There are different opinions about what these basic emotions are but they can include emotions such as "interest, joy/happiness, sadness, anger, disgust, and fear" (Izard, 2007, p. 261), but also awe, contempt, embarrassment, excitement, guilt, shame, surprise, enjoyment (from sensory sources and of accomplishment), amusement, contentment, relief, pride in achievement, and satisfactions (Ekman, 1992; 1999) and lust, care, panic, play, rage, and seeking (Panksepp, 2006).

Self-Determination Theory (SDT) by Ryan and Deci (2000) proposes that human motivation is mostly driven by feelings of autonomy, competence, and relatedness to others (Kaufman & Duckworth, 2015; Ryan & Deci, 2000). There also exist other needs, motives, and emotions that can guide people's behaviors (Saariluoma et al,. 2016), from safety and socially related fundamental needs to individual psychosocial needs, such as feeling love, respect, and pride (Tay & Diener, 2011). According to Panksepp (2006), seeking, the goal-directed "appetitive desire to find and harvest the fruits of the world" (p. 779) is one of the seven core endo-psycho-phenotypic emotional systems that exist in all mammalian brains. As Clark (2013) notes, "change, motion, exploration, and search are themselves valuable for creatures living in worlds where resources are unevenly spread and new threats and opportunities continuously arise" (p. 13). Similarly, Izard (2009) asserts that "the emotion of interest is the central motivation for engagement in creative and constructive endeavors and for the sense of well-being" (p. 4), where interest also affects the selective attention and other mental processes.

#### 2.2.1.2 Empathy

Appraisal not only concerns how individuals themselves feel or how situations are evaluated from their own perspectives, but it can also be extended to interpret and understand situations, events, and feelings of other creatures. Empathic understanding is an important aspect in investigating how individuals make sense of the world and make judgements regarding other creatures and objects, as discussed in Article V. Empathic understanding can lead to different possible emotional experiences, including vicarious emotions such as empathy (Wondra & Ellsworth, 2015). Empathy, in turn, can lead to sympathy (Carroll, 2017b; Maibom, 2017; May, 2017) and prosocial behavior, such as helping or sharing, which "increases the benefit of the other." (Uzefovsky & Knafo-Noam, 2017, p. 75).

Empathy can be defined in many ways, such as an ability to recognize and response to emotions, mental states, and subjective experiences of others from their embodied presence, from the perspective of the observing self (Bennett & Rosner, 2019; Gallagher & Zahavi, 2012; Maibom, 2017; May, 2017; Thompson, 2011; Uzefovsky & Knafo-Noam, 2017). Empathy can be divided into cognitive and emotional empathy, where the former, cognitive empathy, refers to an individual's cognitive abilities or a component to recognize thoughts, feelings,

and mental states of the other (Maibom, 2017; Spaulding, 2017; Thompson, 2011; Uzefovsky & Knafo-Noam, 2017), and the latter, emotional empathy, refers to emotional experience with feelings of sympathy and emotional sharing (Maibom, 2017; Uzefovsky & Knafo-Noam, 2017; Zahavi, 2008).

Empathy can be felt via dynamic embodied processes that are based on the observer's perceived similarities between their and observed bodies or identities, and by imagining or mentalizing how oneself would feel, think, and/or act in another's situation (Fuchs, 2011; May, 2017; Ratcliffe, 2006; Spaulding, 2017; Spunt, Satpute & Lieberman, 2010; Thompson, 2011; Zahavi, 2008). People also have an ability to use more demanding cognitive systems or structure of mental-state concepts to create inferences about and to explain and predict themselves, others, and objects and their mental states and behaviors (Apperly, 2011; Astington & Baird, 2005; Fuchs, 2011; Gallagher & Zahavi, 2012). This ability is sometimes called the Theory of Mind (TOM), which consists of the folk-psychological theorizing, and analogy-based simulation (Apperly, 2011; Gallagher & Zahavi, 2012; Goldman, 2013; Lohmar, 2006; Spaulding, 2017; Thompson, 2011). The ability to feel empathy differs between individuals and it can be affected by different factors including if the observer cares for the observed object, the observer's prior opinions such as the estimated benefit for the observer and the object, the observer's age, culture, and even their genes (May, 2017; Spaulding, 2017; Uzefovsky & Knafo-Noam, 2017).

### 2.2.2 Apperception and association of mental representations

The association of appraised emotions with perceptions and learned concepts, integrating them with schemata, and constructing them into subjective, content-specific mental representations that have meaning or are sensible, as perceiving or experiencing "something as something" (Saariluoma & Hohlfeld, 1994, p. 2), is called apperception (Kant, 1781/2009; Saariluoma, 1992, 2001, 2005; Saariluoma & Hohlfeld, 1994). To Kant, an essential component in the creation of thoughts as consciously experienced representations was something that he called apperception, or "a synthesis of representations" (Kant, 1781/2009, p. 174) that happens in and by consciousness.

In apperception process, varieties and disunited fragments of representations are joined into one unity, according to rules of rationality and causality. Apperception should be understood as part of the functioning of understanding, and as a separate phenomena than perception. The apperceived mental representation gives the experience its meaningful contents that are analogous to the things and systems of phenomena in reality, and that are presented in the conscious experience of the mind (Kant, 1781/2009). Thus, experiencing is transforming raw sensuous material into knowledge and understanding in an active process of cognizing (Kant, 1781/2009).

Apperceptions are "semantically self-consistent" (Saariluoma, 2001, p. 150) mental representations that include conscious and unconscious parts. Apperceptions are assimilated or integrated information from both sensorially

perceivable content elements such as a perceived object's shape, color or scent, and from non-perceivable, abstract, and conceptual elements, such as learning how and in what context to use that object, what are the object's temporal properties or social norms that are associated with that object (Saariluoma, 1992, 2001, 2005; Saariluoma & Hohlfeld, 1994). Examples can be found from Kant (1790/2007), where perceivable elements are the ones that create objective sensation, such as sensing the greenness of a meadows, whereas non-perceivable elements, where there is no represented object, creates subjective sensations like emotions. Apperceptive processes, where objects are given their meaning in an activated problem space, include such processes as understanding, comprehending, and apprehending (Saariluoma, 1990, 2005). A subject's self-regulated activity of assimilation and transformation of knowledge states and structures in meta-cognitive, formal operations, "as integration of any sort of reality into a structure" (Piaget, 1964/2003, p. s17) is a fundamental aspect also in learning and development of thinking.

### 2.2.3 Thinking as problem-solving

Human individuals, like any other creatures, are sometimes faced with a certain situation in which they have a problem that cannot be solved using an existing solution in memory or by acting in a typical manner. This situation calls for solution-related thinking (Novick & Bassok, 2005). For example, making interpretations of artworks can be understood as an example of a situation that requires problem-solving thinking from the art spectator (Lindsay & Norman, 1977; Kuuva, 2007; Solso, 2003). As Novick and Bassok (2005) described, solution-related thinking depends on two things: "the solver's representation of the problem" and the individual's understanding of the underlying, essential nature of the problem, and on "the sequence of steps the solver takes to get from the given situation to goal." (Novick & Bassok, 2005, p. 322).

In the information-processing theory of thinking by Newell & Simon (1972; Simon & Newell, 1971) any intelligent adult human being can be understood as a problem-solver who is processing information to perform problem-solving tasks with goals in an objective task environment (Newell & Simon; 1972; Simon & Newell, 1971). Different problems are solved using some adaptive mental and behavioral strategies to reach various goals in changing life situations (de Groot, 1946/2008; Newell & Simon; 1972). Task environments can be all sorts of different situations in life, such as walking, interacting with other people, or judging works of art (Kuuva, 2007; Newell & Simon, 1972). These environments are represented for the problem solver as subjective, internally-constructed representations called "problem spaces" (Newell & Simon, 1972; Simon & Newell, 1971). An individual must encode a set of problem components in a space "that represents the initial situation presented to him, the desired goal situation, various intermediate states, imagined or experienced, as well as any concepts he uses to describe these situations to himself" (Newell & Simon, 1972, p. 59). What problem space is used by an individual subject depends on their general

intelligence as well as their knowledge of that problem domain (Newell & Simon, 1972).

According to the information-processing theory of thinking, the structure of the external task environment determines the structure of the internal problem space, and the structure of the problem space determines what programs and processes of selective search can be used to solve the problem (Newell & Simon, 1972, p. 789; Simon & Newell, 1971). The sources of information that can affect the determination of the problem space can vary. For example, they can be how a task is instructed, previous experience with a similar or the same task, or a task that is somehow recognized as analogous to some previously experienced task, general programs that are stored in long-term memory which can be applied to the task or programs that combined information in long-term memory with the external information, and the course of problem solving itself, which can modify or change the program or the problem space (Newell & Simon, 1972, p. 848). What information is embedded and available in the problem space defines what programs are used (Newell & Simon, 1972).

In this theory, the human mind is described as an information processing system, at least when thinking and solving problems, and different behaviors can be explained by sets of different information processes (Newell & Simon, 1972). The mind as an information-processing system consists of memories that can store and retrieve symbol structures that are set of tokens or elements called symbols, which are connected to each other with relations (Newell & Simon; 1972; Simon & Newell, 1971). One component of the system is a processor that consists of elementary information processes, a short-term memory, and an interpreter. An information process has symbol structures for its inputs and outputs, and a symbol structure designates or references to an object if the symbol structure is accepted by some information process as an input that affects the object or is dependent on the object. A symbol structure can be a program and a symbol can be primitive, if certain terms are met (Newell & Simon, 1972, pp. 20–21).

Objects can be symbol structures stored in memory, system's processes, or sensible stimuli from external environment. Certain stimuli or patterns of stimuli can become "designated by particular symbols" through learning, and these "recognizable stimulus patterns" (Newell & Simon, 1972, p. 792) can be called chunks. Chunking information is an example of a functionality due to the limited span of the short-term memory, where only small number of items of psychological units can be stored, and of the economical organizing of cognition to overcome this limited mnemonic capacity (Miller, 1956). According to Newell and Simon (1972), the information-processing theory of thinking is also a content-oriented theory, as it "can deal with the full content of a task," (Newell & Simon (1972, p. 11) even though there would not be an information processing system that would understand content semantically in the way humans do, for example a poem as a poem. The theory is also dynamic, as it describes state changes in the mental information process that unfold over time (Newell & Simon, 1972).

In a problem-solving process, a framework of an internal representation of the external environment is produced by a process called initial translation. Then,

the system selects and applies a specific problem solving method, "a collection of information processes that combine a series of means to attain an end" (Newell & Simon, 1972, p. 91), in a plan formation phase (de Groot, 1946/2008). A selected method has a rational relation to the internal representation of the problem space (Newell & Simon, 1972). Subjects can search, with a special heuristic system of mean-ends analysis, different solution alternatives from their corresponding space of possible situations stored in internal memory, by proceeding through their tremendously large but structured problem space, moving from one node or knowledge state to another state, or what de Groot (1946/2008) calls solution proposal, and retrieving the information from that knowledge bearing problem space that is available for the subject in that specific moment. This search process continues until the subject knows the answer to the problem, and a goal set by the task is satisfied (Newel & Simon, 1972; Simon & Newell, 1971).

At each node, the subject makes two choices based on an evaluation of their knowledge states: whether to choose and apply an appropriate operator to proceed to a new node, or to desert or reject that node, thereby returning to a previously visited base node and selecting another node to proceed (Newell & Simon, 1972; Simon & Newell, 1971). This phase-wise methodology or heuristics, called "progressive deepening" (de Groot, 1946/2008, 1964), is applied because the limited human short-term memory allows for remembering more than few steps back in one's mental search history (Newell & Simon, 1972; Simon & Newell, 1971). A method can be halted or terminated, following that a new method might be attempted, the problem and different internal representation can be reformulated, or the subject can stop attempting to solve that problem. Also, new problem subspaces can arise during the process (Newell & Simon, 1972).

### 2.2.4 Insight and restructuring

Problem-solving is not just straightforward processing of knowledge that is based on matched associations between different mental contents. Köhler (1925/1959) experimentally studied how a group of chimpanzees solved problems in order to achieve goals, and whether they exhibited intelligence and insight in their problem-solving behavior. Köhler (1925/1959) concluded that the random versus smooth behavior displayed by chimpanzees exhibited distinctively different methods in their thinking, one that was based on unorganized thoughts, and another that was characterized by intelligent consideration or insight. Insight, or a chimpanzee's intelligent behavior, was demonstrated by the appearance of a complete and genuine solution to the problem situation, as a result of a moment of careful and focused thinking process (Köhler, 1925/1959). This kind of thinking process can be also found in human problem-solving situations.

As Piaget notes: "Any given [cognitive] state is understood to be the result of some transformation and the point of departure for another transformation." (Piaget, 1964/2003, p. s17). When an individual recognizes a new abstracted problem subspace in a stimulus, they try to identify familiar patterns and task-

related cues, often in automatic and effortless apperception processes which, in turn, can activate some existing hypothetical path to a solution (Saariluoma, 1990, 1992; Saariluoma & Hohlfeld, 1994), or a thought model as a type of a learned mental model (Saariluoma, 2001). However, sometimes individuals are confronted with a situation, where the automatic apperception process does not provide an adequate solution to a problem (Saariluoma, 1990, 1992), or what is called apory (Rescher, 2013). Apory is a situation where individual's beliefs and claims seem inconsistent, incoherent, and in conflict with each other (Rescher, 2013). This situation calls for a process which can start from an aporetic analysis of setting a question and then finding and selecting possible alternatives for it (Rescher, 2013), and where the apperceived problem space is abandoned or modified (Saariluoma, 1990, 1992; Saariluoma & Hohlfeld, 1994). This transformative process that leads to insight can be called restructuring (Köhler, 1925/1959; Piaget, 1964/2003; Saariluoma, 1990, 1992; Saariluoma & Hohlfeld, 1994).

In restructuring, several problem spaces are combined and constructed into new problem representation with several alternative solutions. The success of the evaluation of these new solutions depends on the goals and skills of the thinking individual (Saariluoma, 1992). This kind of problem-solving process can be found in human thinking in many different domains, from chess playing (de Groot, 1946/2008, 1964; Saariluoma, 1990, 1992, 2001; Saariluoma & Hohlfeld, 1994) to psychological development in children (Piaget, 1964/2003) to shifts or insights to different possible interpretations and restructuring of mental representations made by spectators when they look at artworks (Freeland, 2001; Kuuva, 2007). These meaning-making processes compare new information with individual's existing knowledge to make sense of that information, and to construct new concepts into interrelated knowledge structures (Halpern, 2013). During these processes, the acquired information is turned into subjective knowledge (Halpern, 2013; Piaget, 1964/2003).

## 2.3 Conscious experience of graffiti

The development of consciousness is a biological adaptation that has enabled humans to anticipate the future, cope with changes, and cooperate with others. Being a conscious creature means having a sentient life and a feeling, experiencing mind. An experience can be understood as a temporally unfolding, subjective conscious phenomenon in which some information content in mental representations reaches an individual's conscious awareness. An individual's conscious experience is grounded in the metacognitive abilities of being able to self-reflect; to think about their own thinking, knowledge, and learning; and to compare their own viewpoint with other viewpoints and contexts. These mental abilities are mediated by language in social interactions. Language is a way to communicate; to share thoughts, knowledge, experiences, and values; and to

collaborate and create social bonds with other people. However, language is not the same as mental content or thinking, and not all thoughts can be expressed with language.

Conscious experience underlies mental processes, such as thinking, memory, perception, imagination, and language. Environments, objects, and others' possible actions are evaluated in an appraisal process in which feelings are conceptualized into recognizable emotions. Emotions can be understood as temporary, parallel emotional episodes with conscious feelings and unconscious and automatic recursive processes, for example, when evaluating an artwork. Emotional states comprise four main dimensions: intensity, temporality, theme such as joy or anger, and valence. Emotions are closely linked to human motivation and empathy, as understanding the mental states and subjective experiences of another creature from the other's perspective. In the apperception process, appraised emotions are integrated with perceptions, learned concepts, and different schemata and constructed into subjective, content-specific, unified, and meaningful mental representations. When an individual is faced with challenging or aporetic situations in life, it requires them to engage in a problem-solving process. Problem-solving is not just a straightforward processing of knowledge that is based on matched associations between different mental contents. It can also lead to insights into new ideas in the process of restructuring.

Presumably, when an individual sees objects such as works of graffiti, they have some kind of conscious experience about it. They think, imagine, feel, remember, and sometimes speak about their experiences to make sense of them and compare and share them with other humans. They can feel motivated or not to engage in further inspection of the graffiti, and they might or might not understand what other individuals think and feel about those graffiti, as discussed in Articles IV and V. As described in Articles IV and VI, the mental content that an individual is experiencing results from appraisal and apperception processes. If there are moments in which an individual is faced with ambiguous or conflicting information, it requires them to engage in mental problem-solving, which in turn can lead to new insights as a result of restructuring information contents into new mental representations.

# 3 NEURONAL BASIS OF CONSCIOUSNESS

While consciousness can be explained as a philosophical and computational phenomenon, there should be no doubt that within humans the consciousness emerges from some physical and biological construct, such as the brain. Without certain brain activity, there is no conscious awareness. Because consciousness and the structures and activities in the brain are somehow related, one way to study consciousness is by empirical neuroscience. There are many 'easy problems' about how people discriminate and react to external stimuli, how learning and memory relate to changes in the brain, how information is processed and integrated in neural level or in a cognitive system, how a system is able to focus its attention, or to access and report its own internal mental states, what are the differences between different states of consciousness, etc. (Chalmers, 2010; Revonsuo, 2017). There are also few major issues in the current scientific or empirical research on consciousness: what it subjectively feels like to experience something, or how similar brain activity can turn into totally different conscious experiences with different qualities of the 'what-it-is-likeness' called the Explanatory Gap (Revonsuo, 2017; Tye, 2000). Then there is the so-called Hard problem, which is the question regarding "why and how does consciousness emerge from neural […] activities at all" (Revonsuo, 2017, p. 5).

Easy problems are easy because they can be studied and explained with "standard methods of cognitive science" and "in terms of computational or neural mechanisms" (Chalmers, 2010, p. 3). According to Pinker (2011), neuroscientific research techniques can tell, for instance, in which areas of the brains bloods flows when people are thinking about different things, and that electrical stimulation of the brain can cause illusionary sensations. It can tell that bisecting brains hemispheres by cutting corpus callosum alters the sense of consciousness, that the information in the brains flows in multiple streams of processing in complex neuronal networks that are spread thorough the brain, and when brain activity ends, consciousness also ends (Pinker, 2011). The 'hard problem' of consciousness questions what the relations between these neurobiological processes are and how the neural system and its functioning can

create a subjective experience with certain qualities, as different mental states are experienced as sensations of redness, depth, sounds, pain, as mental images, emotions of joy or sorrow, and as experience of thinking as a stream of thoughts (Chalmers, 1995, 2010; Maldonato, 2014).

Modern neuroscience has allowed scientists to dive in the structures and activities that happen in neural level during conscious events and this way to find answers, at least in theory to some of the 'easy problems' (Chalmers, 2010; Pinker, 2011; Revonsuo, 2017). States of subjective and phenomenal conscious experiences can be associated with corresponding activities of the brain, which form the neural substrate or the neural correlate of consciousness (NCC) (Crick & Clark, 1994; Chalmers, 2000; Tononi & Koch, 2015; Van Gulick, 2012). Neural correlate of consciousness can be defined as "the minimal neural mechanisms that are jointly sufficient for any one conscious percept, thought or memory, under constant background conditions" (Tononi & Koch, 2015, p. 2), where background conditions are such as having functioning organs that provide oxygen-rich blood to the brain, or certain nuclei are in their right places and active.

In neuronal level the emergence of consciousness is most likely a result of the integrity and progressive activities of the thalamic-cortical system, beginning from the deep cerebral structures and their connections to cerebral cortex (Maldonato, 2014; Tononi et al., 2016). However, after two centuries of studies, no consensus exists where the neural correlate of consciousness is anatomically located, nor clear picture about how the brain processes and binds information and how this information content is brought into and related with consciousness and the conscious mind (Tononi & Koch, 2015; Tononi et al., 2016). In Pinker's words, "The fact that our skulls are packed with complex tissue does not explain how that tissue makes us smart" (2011, p. 191), and that is why the mental information in consciousness needs to be studied from the level of explanation of information processing (Pinker, 2011).

## 3.1 Information and consciousness

Haikonen states that "consciousness is neither energy nor matter" (2012, p. 3). This kind of notion exemplifies how the research of phenomenal and other forms of consciousness is a fairly difficult task. According to Chalmers (1995), phenomenal experience should be a fundamental concept in theory of consciousness, as it presents the basic or bottom level of fundamental entities and laws (Chalmers, 1995; Revonsuo, 2010). Reducing the research and explanations of consciousness, mental content, its qualia or "raw feels" of sensory qualities, and the subjective experience into the concepts and models from natural sciences only is not sufficient and can even distort the meaning of these phenomena (Chalmers, 1995). The term "qualia" refers to the perceived phenomenal feelings and qualities of percepts of the world and bodily sensations, which compose the

subjective experience's appearance, such as how a colour is seen (the redness of a tomato), how foods taste (the sweetness of candy), how pain feels, and so on (Haikonen, 2012).

Chalmers (1995) suggests that in humans an experience is linked to a corresponding content of functional consciousness as both are information that comes forth in human's behavior and speech. Information can be understood as "a pattern in matter or energy that correlates with the state of the world" (Pinker, 2011, p. 191) which has experiential and physical sides that are connected to each other through fundamental psychophysical laws (Chalmers, 1995; Revonsuo, 2010). This makes it possible for an experience, which is the mental dimension of information, to emerge from processing that is executed in a physical world, such as the brain (Chalmers, 1995).

To cite Floridi (2009, p. 13): "Information is notoriously a polymorphic phenomenon and a polysemantic concept," and it can be explained in several different ways, depending on the requirements and theoretical approach and application of the concept. Information can be analyzed as quantified information of the data that constructs information, in the form of Mathematical Theory of Communication (MTC), which is a probability theory named after Shannon's (1948) seminal work (see also Shannon & Weaver, 1949). In this theory, that originated from electrical engineering, information is a physical phenomenon (Floridi, 2009). Shannon's MTC understands information as entirely technical, quantifiable "selection of one symbol from a set of possible symbols" (Floridi, 2009, p. 32).

This kind of notion of information has been used and later expanded in cognitive psychology, in examples such as researching how pieces of information are extracted from noisy data in perception, and in theories of mental content and activity providing computer-based models of processing chunks of information as inputs and outputs from memory buffers to central filters, and further through limited-capacity channels (Abrahamsen & Bechtel, 2012; Lindsay & Norman, 1977; Newell & Simon, 1972). In general, when discussing cognition in humans, it is essential to consider various capacity, system, and functional constraints that limit human performance, such as limitations related to individual's sensory organs, attention and its limitations in selecting and collecting information, working memory and its units and subsystems, and mechanisms such as chunking, that have evolved to enable humans to work around all the limitations when dealing with complex mental information (Saariluoma, 2005).

## 3.2 Empirical theories of consciousness

Consciousness is a complex process that entails multiple intentional contents and various micro-events which are integrated into conscious experience (Maldonato, 2014; Zeki, 2001, 2009). One of the cognitive or empirical theories of consciousness is the Global Workspace (GW) theory by Baars (1997) which has

tried to explain, with a metaphor of "theater of consciousness," how sensory and abstract information are competing for access as convergent input into the limited capacity "stage of working memory." The attentional spotlight then selects or filters, either voluntarily or spontaneously, the most significant content on the stage which then becomes completely conscious content in experience. Conscious events are influenced and shaped by the unconscious behind-the-scenes systems: contexts and factors such as expectations, goals, and past experience, called context operators (Baars, 1997; Van Gulick, 2012). Divergent output, the message from the actors on stage, is further globally distributed to unconscious systems, contents and automatisms which process information locally (Baars, 1997).

Global Workspace theory has had much influence on other philosophical and cognitive theories of consciousness, such as Dennett's (1993) multiple drafts model (Van Gulick, 2012). However, there are several unanswered questions regarding the Global Workspace theory, particularly related to the hierarchies and temporal dynamics of neuronal selection, competition, and activity (Maldonato, 2014). As Chalmers (2010) points out, Global Workspace theory is not about why there is a conscious experience, but about awareness and accessibility, along with integrations and the reportability of certain information contents within a cognitive system.

Another type of cognitive theory of consciousness is the Information Integration theory (IIT) (Tononi 2015; Tononi & Koch, 2015; Tononi et al., 2016) which addresses how the brain can give rise to experience by starting from the consciousness and its essential properties, which can be found in all experiences. Information Integration theory proposes that "every experience exists intrinsically and is structured, specific, unitary, and definite" (Tononi et al., 2016, p. 450). These five essential phenomenal properties of experience are called axioms:

1. "Intrinsic existence" means that a person's experience exists from their inherent perspective, independent of outside observers.
2. Conscious experience is structured and composed of elementary or higher order phenomenological distinctions, such as something being blue, a book, and a blue book; this axiom is called "composition."
3. The "information" axiom means that consciousness is specific, and each experience has its particular distinctions, differing from any other experiences.
4. Experience has a property of "integration" where "the content of an experience (information) is integrated within a unitary consciousness" (Tononi et al., 2016, p. 452). A person experiences a unitary and integrated whole, for example, a whole visual scene, not only its phenomenal subsets such as just the other side of the visual field.
5. "Exclusion" means that conscious experience is definite in its set of phenomenal distinctions for content and temporal granularity and is neither less or more, nor faster or slower. For example, a person experiences a blue book on a bookshelf, but does not experience any less

content, such as experiencing the same book in a bookshelf in black and white colors. (Tononi 2015; Tononi & Koch, 2015; Tononi et al., 2016.)

These axioms have their corresponding properties of physical substrate of consciousness (PSC) accounting for experience, called 'postulates' (Tononi, 2015; Tononi & Koch, 2015; Tononi et al., 2016) that derive whether a system of mental states "has consciousness, how much, and of which kind" (Tononi, 2015). It is important to note here that what is meant by the term 'postulate' differs from Saariluoma's (1997) meaning for the term, in which 'postulates' means unproven and unconfirmed tacit and basic intuitive assumptions that are, nevertheless, actively used in scientific and psychological explanations.

In IIT, measuring the degree of integration of information is done by computing a special phi value, (Φ), where the higher phi values in physical subsystems, neurons, which are elements of a complex that form a conceptual structure, are corresponded with more differentiated and interconnected contents and, consequently, with higher quantities or levels of consciousness (Tononi & Koch, 2015; Van Gulick, 2012). According to Van Gulick (2012), where conscious contents have high information value, distinguishing conscious mental states by the degree of their integration of information, can be considered of the essential ideas of IIT.

It is also important to note how 'information' is defined and used in information integration theory. It clearly differs from Shannon's definition (Shannon & Weaver, 1949; see also Floridi, 2009) and how information is understood in everyday language (Tononi & Koch, 2015; Tononi et al. 2016). In IIT, what is meant by information is closer to those views, where explaining mental information contents premises "a qualitatively different model from capacity or format-based thinking" (Saariluoma, 1997, p. 120). In IIT, the form of the conceptual structure of the physical system determines and qualifies the integrated information content of an experience, and it is quantified by the phi value (Tononi et al., 2016). According to Tononi and Koch, "Information refers to how a system of mechanisms in a state, through its cause–effect power, specifies a form ('informs' a conceptual structure) in the space of possibilities" (2015, p. 8). Information is also intrinsically assessed; its present state has causal affects to its past and future states, it is composed of combinations of elements, it is qualitative, integrated, and cannot be partitioned, and it is exclusive, where only the maxima of information is considered (Tononi et al., 2016). In addition to suggesting that phenomenal capacity exceeds Shannon's access capacity, IIT also argues against Global Workspace theory, asserting that conscious information is not broadcast between different parts of the brain (Tononi et al., 2016).

There have been proposals for understanding the human mind, the brain, and behavior not based on representational and/or computational cognitive systems, but using dynamical system theories, thereby explaining individuals as cognitive agents, or dynamical systems who are embedded in their environments and whose behaviors evolve in time in a certain, law-governed way, as a function of variables (Bermúdez, 2016; Van Gelder, 1998). Dynamical systems modeling aim to calculate different trajectories that the system can take, starting from the

system's initial conditions (Bermúdez, 2016). The brain and the mind are a dynamical system and also the person and their environment create a complex, time-sensitive and coupled system, where the behavior emerges as a result of complex interactions and feedback loops between the individual, involving their bodily and cognitive features, their abilities, memories, specific tasks, and features and parameters of their given environment (Bermúdez, 2016; Van Gelder, 1998). For example, the Dynamical Emergent theory (DET) extends existing theories such as Information Integration theory and some others, in attempting to combine ideas from neuroscience, philosophy of the mind, and psychology (Moyal et al., 2020). It investigates the computational and functional relationships between a system's structure as a set of elements, their dynamics as dependence between elements' states during certain time intervals, and the basic awareness and representations of the world, with phenomenal content that the given system produces (Moyal et al., 2020).

According to the DET, the system's dynamics define causally and predictively operating, coarse-grained macrostates, and trajectories of neural population activities which are isomorphic to the contents of phenomenal consciousness, in a similar way that is viewed in IIT (Moyal et al., 2020). The neural activity in geometric and topological structures of the system results in measurable transitions as coordinated firing patterns, spikes and local field potentials effecting to the phenomenal experience (Moyal, et al., 2020). Interestingly, DET identifies representational capacity (RC) and the amount of experience (AE) as relative values, the nature of experience (NE) as structures comparable with behavioral reports, and it also concerns evolution and learning of situated agents and the functional and computational character of emotions (Moyal, et al., 2020). However, even though dynamical systems theories can provide effective tools to explain how the mind works to some extent, they might not be comprehensive enough on their own to explain all aspects of the mind (Bermúdez, 2016).

In addition to those explained above, there are several other empirical theories of consciousness and conscious experience and their neural underpinnings. For example, Revonsuo (2010) describes theories such as the neurobiological theory, the dynamic core theory, the thalamocortical binding theory, the recurrent processing theory, the microconsciousness theory and the consciousness as the feeling of what happens (Revonsuo, 2010). As Revonsuo (2010) notes, disagreements still remain regarding the form and neural mechanisms of consciousness and how those are related to higher cognition. Research on consciousness has developed in the last decades that has updated theories about the emergence and forms of consciousness-like phenomena in infants and non-human animals, for example (Allen-Hermanson, 2018; Gennaro, 2012; Shettleworth, 2010), insects (Chittka & Wilson, 2018), and even plants (Barlow, 2015), machines, and robots, especially regarding the problems with synthetic robot consciousness and qualia (Haikonen, 2012; Waskan, 2018). Obviously, many of the investigations that have explored outside the functioning of healthy human adult brains have been of significant importance to

understanding consciousness and the mind from biological, psychological, and phenomenal aspects. Vast set of studies from different fields have led to new hypotheses about things like awareness, sentience, and consciousness in non-human animals, and, overall, have contributed to the larger discourse and moral concerns of not only how consciousness is defined or studied, but also about humankind's own relation to and treatment of other conscious creatures (Allen & Trestman, 2017).

## 3.3 Causal picture of experience

There seems to be a general consensus among researchers that in perceptual experience, sensory information is interpreted in a rapid and automatic mental process that makes the perceived information available for awareness (Lindsay & Norman, 1977). Descartes (1641/1996) termed this mental interpretation process "imagining." "When I imagine a triangle, I do not conceive it only as a figure comprehended by three lines, but I also apprehend these three lines as present by the power and inward vision of my mind" (Descartes, 1641/1996 , p. 96). Valberg calls this "the causal picture of experience," (Valberg, 1992, p. 24) when the causal chain of events in information transport and activities in the brain where visual information leads to a conscious perceptual experience. First, the output signal, such as light rays, is received in the sensory organ, such as an eye's retina, where specialized photosensitive cells called photoreceptors react to light in a process called phototransduction, causing potential actions that provide information about things like color and light intensity (Purves et al., 2012; Zeki, 2001, 2009).

This information, which is used for not only object recognition, but to regulate circadian rhythms and the adjustment of one's pupils, is transported through the optic nerve to different visual centers in the central nervous system, such as optic chiasm, thalamus, primary visual cortex, pretectum, and suprachiasmatic nucleus (Purves et al., 2012). On the cortical level, specialized neuro cells are further processing the information from the retinal ganglion cells, as some neurons are activated by properties such as orientation of edges, movement direction, and contrasts (Baars and Gage, 2010; Haikonen, 2012; Purves et al., 2012; Zeki, 2009). In the case of visual perception, information flows from a primary visual area to other visual and cortical associative areas via ventral streams to analyze more detailed aspects, such as movement and spatial information, as well as object recognition (Baars & Gage, 2010; Purves et al., 2012; Zeki, 2009). The brain's ventral cortical streams (the "what" pathway) delivers object learning, recognition, and prediction-related information signals that can be reported, and the dorsal cortical stream (the "where" pathway) delivers information about object location, guides spatial attention, eye movements, and visuomotor control (Anderson et al., 2004; Baars & Gage, 2010; Chang, Grossberg & Cao, 2014; Lycan, 2012).

Neurological research has found that there are also specific brain regions and selective neuronal networks, for instance, fusiform facial area or FFA that are specialized to respond to only face recognition (Baars & Gage, 2010; Getov & Winston, 2015; Kanwisher et al., 1997) and mirror cells that are selective to goal-oriented body movements (Gallagher & Zahavi, 2012; Ratcliffe, 2006). The activation of these neuronal cells can also impact the ways of perceiving and judging, already in the very early phases of both perception process (Calvo-Merino, 2015; Getov & Winston, 2015; Zeki, 2009). A vast amount of research has been conducted on clinical cases in which strokes, diseases, accidents, or other causes of brain damages have led to a variety of intriguing phenomena related to abnormal cognitive functioning, regarding changes in perception, recognition, and expression, among others (Baars & Gage, 2010; Chatterjee, 2015; Zeki, 2001, 2009). Clearly, in these situations, the conscious experience is significantly altered from a typical experience.

The sensory information from external world to the further regions in humans' brains can have certain general activation paths, at least according to imaging of brain activities, although recent studies have suggested that the information flow is not linear and simple but rather complexly associated (Getov & Winston, 2015; Zeki, 2009), in which information is re-entered and circulated in feedback loops (Haikonen, 2012; Laarni et al., 2001) and integrated in cognitive cycles (Madl, et al., 2011). Information passes back and forth all directions, from low-level information to high-level and from top-to-bottom and sideways, parallel and serially, mediating, filtering, matching, and selecting the information that is then processed to resolve the signal's ambiguity and to create fast and optimal probability predictions for the person's current needs in the limits of the brain's biological and computational capacities (Getov & Winston, 2015; Haikonen, 2012; Laarni et al., 2001; Zeki, 2009). Processing perceptual information, however, does not always lead to a clear judgment of what is perceived. For example, when visually perceiving a work of art, if there is not enough relevant information, if there is too much irrelevant information, or if the data can be constructed in several different mental representations, the perceived artwork might seem ambiguous and difficult to interpret, which can also cause visual illusions (Lindsay & Norman, 1977; Solso, 2003; Zeki, 2009).

Even though much is known about the neuronal-level activities in visual and other perceptual systems, and some suggestions have been made by researchers about how these activations might relate to felt experiences, many of the empirical and scientific questions related to the perceptual processes, the mind, and consciousness persist. Science still cannot fully explain how the brain can generate the visual perceptions or other types of conscious experiences (Purves et al., 2012; Revonsuo, 2017). Neither can the causal picture of how information flows in certain brain areas tell how and why people experience and understand things differently, such as works of art. It is true that people can have "veridical perception" (Solso, 2003, p. 68) which represents the real world, and, for example, the perceivable properties of a work of art, but how individuals interpret that object depends largely on the knowledge and schemata they have

acquired from learning and past experiences. These pieces of knowledge and schemata are stored as information in the memory, and applied in human cognizing in different contexts, also following some logical rules of perception (Freeman, 2001; Lindsay & Norman, 1977; Solso, 2003; Zeki, 2009).

## 3.4 Cognitive penetration in experience

Perceptual experience can be described as "a conscious state that has a distinctive perceptual phenomenal character" (MacPherson, 2017, p. 13), experienced when humans consciously see, hear, or otherwise perceive and/or also consciously hallucinate (MacPherson, 2017). In cognitive penetration to perception, cognitive and affective states, such as beliefs or expectations, affect the contents of perceptual experience (Lyons, 2016; Stokes, 2014). Cognitive penetration is related to predictive coding (MacPherson, 2017). In the minimal version of predictive coding theory, there are high-level cognitive states that can impact early vision or perceptual experience. In other views, cognition and perception are put on different sides of a one continuum of experience, and they can affect conscious states from either side of that continuum (MacPherson, 2017). Some more radical views on predictive coding even suggest that no real distinction exists between cognition and perception in the first place so there is no need for cognitive penetration (MacPherson, 2017).

According to MacPherson (2017), there are two phenomena within the term cognitive penetration. The first is a frequently discussed penetration of early vision, where attentionally modulated signals from sensory modalities are taken as inputs, produced as shapes and other representations, and identified and categorized by a cognitive system. The main question concerns whether the early phase system's computations are sensitive and in relation and semantic coherence with the perceiving subject's knowledge, beliefs, and goals (MacPherson, 2017). The second phenomenon concerns cognitive penetration in perceptual experience (Lyons, 2016; MacPherson, 2017). Experiences can be considered cognitively penetrated if certain conditions related to the proximal stimulus what is perceived are fixed, if the external settings of perception, the sensory organ, and the focus of attention are fixed, and if it is then possible for two subjects, or one subject at different times or circumstances, to have different perceptual experiences (MacPherson, 2017). These conditions emerge as a result of different contents of their cognitive and emotional background states, such as beliefs, judgments, desires, and possibly possessed concepts of their cognitive systems, and also where there is a causal, semantic link between the content of the states and the content of the experience (MacPherson, 2017; Toribio, 2018).

Cognitive penetration can explain phenomena such as why art experts evaluate artworks differently than novices. Because they have more knowledge about the work, this knowledge affects their more 'fine-grained' as a more detailed and nuanced perception of art (Stokes, 2014). For instance, vision might

be cognitively penetrated by array of social and emotional cues - as visually represented high-level properties in visual experience - which entail meanings that further guide individuals own behavior and help them to predict the behavior, emotions and intentions of others (Toribio, 2018). Arguments against cognitive penetration have often used visual illusions, including the Müller-Lyer illusion (Müller-Lyer, 1889), as an example of how visual experience presents the world in a specific way, regardless of if the experiencing subject knows that the world is not that way (Lyons, 2016; MacPherson, 2012). However, how an individual perceives illusions, for example in cases of perceiving the relations between the elements of the form in Müller-Lyer illusion, recognizing characters in ambiguous figures, or labeling and color matching racially ambiguous faces, can also depend on factors including the environment in which that individual was raised, the subject's age, or learned stereotypical beliefs and knowledge (MacPherson, 2012). These factors evidence the fact that even so-called "low-lever content" in perceptual experience can be cognitively penetrated (MacPherson, 2012; Witt et al., 2015).

However, there are other views arguing that perception is fairly automatic and it stays relatively untouchable to cognitive penetration and individual's knowledge until late stages of perceptual processing (Lyons, 2016). Also, according to Lyons (2016), perception should be separated from perceptual seemings and beliefs that are based on learning, and from higher-level, epistemic inferences that are related to identifying and categorising objects and their properties. For instance, an individual can construct a perceptual seeming of an event where a perception of objects (a child climbing on a furniture) is combined with a certain emotion (danger), or where an expert (a skilled gold-digger) can learn to have a perceptual belief of certain sensory visual stimuli (a yellow shiny rock is tokened as gold) (Lyons, 2016). Cognitive penetration of perception should be understood as a different process or phenomenon from cognitive penetration of cognition (Lyons, 2016) or, presumably, different from cognitive penetration of the overall conscious experience.

The underlying mechanism of cognitive penetration can involve interaction between a perceptual state or process and a deliberate or involuntary and unconscious imaginative state or process, thus resulting in a combination of states where phenomenal characters from both processes are joined in a unified phenomenal state or experience (MacPherson, 2012). As Siegel (2017) suggests, cognitive penetration is just one of the dimensions that can affect people's judgments and perceptual experiences. As Siegel puts it, these dimensions hijack the experience, either influencing them directly as cognitive penetration does, or by impacting an individual's attention to the extent of how efficiently and fast they process perceptions, or how experiences affect and guide their judgment and behavior. Siegel (2017) also argues that the inferences which people make are based on rational or irrational psychological precursors, such as fear, suspicion, or vanity, and because inferences cause experiences, experiences, too, can be deemed either rational or irrational.

## 3.5 Neuronal basis of conscious experience of graffiti

Human consciousness emerges from the brain. Without certain brain activity, there is no conscious awareness. An experience and the corresponding content of functional consciousness both are information that comes forth in a human's behavior and speech. Thus, mental information has experiential and physical sides that are connected through fundamental psychophysical laws. However, there is no clear picture about how the information content that is processed in the brain is brought into and related with consciousness, the conscious mind, and conscious experiences.

There are several empirical theories of consciousness, conscious experience, and their neural underpinnings (e.g., the global workspace (GW) theory, the information integration theory (IIT), and dynamical system theories). There seems to be a consensus among researchers that, at least in perceptual experience, sensory information is interpreted in a rapid and automatic mental process that makes the perceived information available for awareness. This can also be called the causal picture of experience, when the causal chain of events in information transport and activities in the brain leads to a conscious perceptual experience. However, the sensory information flow from the external world to the further regions in humans' brains is not linear and simple but rather complexly associated. Processing perceptual information does not always lead to a clear judgment of what is perceived. For instance, presumably, when viewing an artwork, such as graffiti art, if there is not enough relevant information, if there is too much irrelevant information, or if the information can be constructed in several mental representations, the perceived work can be experienced as ambiguous or difficult to make sense of, and the individual can even experience visual illusions when looking at the work.

It can be assumed that how individuals interpret an object such as graffito depends largely on the knowledge and schemata they have acquired from learning and their experiences, as discussed in Articles I and III–VI, respectively. The contents of both perceptual and overall experience can be affected by cognitive and affective states, such as an individual's possession of knowledge and beliefs. Presumably, this phenomenon, called cognitive penetration, can explain, for instance, why graffiti art experts evaluate graffiti artworks differently than novices. Individuals' inferences, judgments, and rational or irrational experiences are also affected by other psychological predecessors, such as fear or vanity. Thus, it can be suggested that when an individual experiences graffiti art, their experiences are penetrated by, for example, their previous experiences and memories about graffiti, their level of knowledge and expertise in graffiti, and their various different beliefs and emotions.

# 4 EXPERIENCING MIND

According to Fuchs (2011), brains should be understood as a mediating organ that is constantly in meaningful interaction with its environment, comparing actions to past events, and enabling perceptions, experiences and behavior. The way someone perceives the world is made up of their sensorimotor knowledge, their expectations about how objects relate to them, and on their ability to act in the world (Rowlands, 2010). A perceived object is phenomenologically present to the enactive mind of a perceiver, as that object is a continuous store of information that can be explored by directing the subject's attention to that object at will (Rowlands, 2010). As Clark and Chalmers (1998) propose, bidirectional interactions of the mind create active systems that interrelate cognitive processes, its environment, and its resources.

Humans can be understood as autonomous, intentional, enactive, and social agents who interact with the world by receiving, processing, and making sense of information from both internal and external environments that contain objects and other agents (De Jaegher & Di Paolo, 2007). Humans' experiencing and behavior, along with mental and bodily actions and reactions are driven, guided, and modified by thinking and emotions, future goals, past experiences, and the memories they have created (Saariluoma, 2004). Sensorimotor experiences, bodily, cognitive, emotional, and social resources, and participation in changing spatial and social and cultural contexts, practices, and sense-making as an active agent, underlie continuous and emotional processes, shape brains structures and states, and generate new perceptions, thoughts, and experiences of space, time, and social realities (De Jaegher & Di Paolo, 2007; Fuchs, 2011; Joy & Sherry, 2003; Noë, 2004; Schnall, 2011; Schubert & Maass, 2011; Varela, et al., 2016).

This chapter focuses on describing some theoretical views of the human consciousness and the mind that can explain why the conscious experience functions and feels how it does, focusing on representational theories of the mind, narrative and predictive theories of the mind, and embodied mind and 4E cognition. An approach to consciousness and conscious experience that is

developed on the basis of these previous theories and which emphasizes mental information content is presented by the authors in Article VI. Explaining different theories and approaches of the mind can help understand why a conscious experience has the context-dependent, subjective, sense-making, and meaningful, intentional representational mental information contents that it has.

## 4.1 Representational theories of the mind and the consciousness

There are several philosophical positions, models, and theories about consciousness and mind. One frequently supported position in the contemporary philosophy of the mind and by several cognitive scientists is called representationalism, which entails different representational theories of consciousness (Lycan, 2019). Representationalism assumes that "for every phenomenal property […] there is some representational property such that, necessarily, a mental state (or a subject) has that representational property if and only if it has that phenomenal property" (Chalmers, 2010, p. 343). Representational theories of consciousness and the mind are about mental processes and structures, the conscious mental events, states, and their representational and intentional properties (Gennaro, 2018; Thagard, 2012; Van Gulick, 2012).

In Representational Theory of the Mind (RTM) (Egan, 2014; Fodor, 2008; Von Eckardt, 2012), which is one of the several theories of the representational mind, the (human) mind can be understood as a computational and representational information-using system, where "cognitive capacities are representational capacities" (Egan, 2014, p. 115). In repsentational theories humans "are intentional beings: we represent what is going on in the world" (Chalmers, 2010, p. 339). Different mental states that represent the world with some intentional content are often characterized with a certain phenomenality as phenomenal properties, which makes them feel like a certain way in a conscious experience and thus, gives the experiencing subject information about the external world and its objects being a certain way (Chalmers, 2010). Intentional content in mental representation and its phenomenal properties can also be about the experiencing subject, giving information about what it is like to be that subject (Chalmers, 2010).

For instance, one view of representationalism, RTM, proposes that there are tokens of cognitive mental states, as instances of types as abstracts of events, which are computations of the causal chains and relations between a creature, its mental representations, and propositions that those mental representations express (Fodor, 2008, pp. 5–6). The mind's computational structures, brain or other physical states can act as representation-bearing vehicles of representations interconnected with each other through causal relations (Fresco 2012; Thagard, 2005; Von Eckardt, 2012). Overall, the mind can be understood as a combination

of a logical rule-based, concept-based, analogy-based, imagery-based and connectionist systems (Thagard, 2005).

Mental representations can be understood as structures or processes of information in the mind, for example classifying concepts, state of affairs declaring propositions, and regularities displaying rules, which are represented in various imagerial (analogical), pictorial, propositional, or other formats. According to Chalmers (2010), intentional mental content can also be represented in a certain manner, for example perceptually, in belief, or functionally, such as making the content verbally reportable. Content can be also represented in more fine-grained levels using sensory specific manners (Chalmers, 2010).

According to representational functionalism, understanding and explaining the contents of the mind, along with its conceptual and sensory representations and human behavior in particular situations, requires using functional and structural explanations (Pitt, 2020; Saariluoma, 1997). Functionalism presents people as goal-oriented agents, and their goals at least partially determine what they perceive, think, and experience (Macpherson, 2011). "The role of the experience determines its content" (Macpherson 2011, p. 13) and the content of the mind and the properties it represents determines the phenomenal character of that experience (Macpherson 2011; Toribio, 2018).

### 4.1.1 Intentionality

Mental representations have their associated, special functional roles, structures, significance, and causal powers. Mental representations must make sense and have consistency, references, appropriateness, and other similar properties. Mental representations are intentional, which means that they refer to, express, and are about some object or a thing that can be called *aboutness*, which has also been referred as "directedness" or "meaningfulness" (Crane, 2011; Egan, 2014; Fresco, 2012; Harré, 2002; Lyons, 2017; Montague, 2016; Pitt, 2020; Saariluoma, 1997, 2005; Thagard, 2005; Van Gulick, 2012; Von Eckardt, 2012).

To understand the concept of intentionality as "aboutness," it is useful to explore writings by Brentano from the end of 1800s. Brentano (1887/1995) suggested that every physical act is directed upon its intentional object, and every thought is directed upon its intentional, immanent, non-real content. Intentions involve real things and their non-real, related counterparts, such as seeing something that is seen or thinking something that is thought. According to Brentano (1887/1995), consciousness has, as its essential characteristics, always and in its every part "a certain kind of relation, relating a subject to an object" (Brentano, 1887/1995, p. 36) what Brentano called the intentional relation. However, unlike in physical or perceptual acts which are directed upon objects, consciousness is always directed at itself (Brentano, 1887/1995).

According to Husserl (1913/2004), an essential part of the cognitive mind is to have consciousness and to be conscious *of something*. Experiences are intentional, and intentional experiences are what Husserl (1913/2004, p. 257) calls "noetic," which means that they have a representational content with a

meaning about something and an intentional relation to that something, which is then brought into the stream of consciousness (Husserl, 1913/2004). In other words, to experience means to be conscious of something, which can be something imagined, something perceived, an interpretation or judgment, or any other idea that represents the lived world and has meaningful mental content (Husserl, 1913/2004).

As Husserl (1913/2004) explains, things are perceived *as something*, or remembered as something, or felt as something, and so on, meaning that mental representational contents have a type of abstract meaning that is also present in experience. Husserl calls this type of understanding the meaning of the mental content as something as their "noematic content" or "noema." (Husserl, 1913/2004, p. 258). However, according to Husserl (1913/2004), not all mental content, such as sensations about pain, are about something, at least semantically. Neither is all the information that individuals receive from the world. For example, some information that is received through senses is brought to the conscious experience, but not those details that belong in the construct of intentional content in the perception of something (Husserl, 1913/2004).

Heidegger (1926/1992) described that seeing something was to be understood not just as perceiving sensory information, but as letting something at the present-at-hand to be seen, such as allowing entities in the world to be perceived as a form of discourse, where something that is said is to be seen as something in synthesis with something else. In other words, seeing something is "seeing something as something" (Heidegger, 1926/1992, p. 33). However, for Heidegger (1926/1992), this synthesis of seeing *something as something* was not to be understood as linking representations or binding together internal and external occurrences, but as a "pure apophantical signification," which means "letting something be seen in its togetherness with something" (Heidegger, 1926/1992, p. 33). Because something has a structure and relational reference with other things, the discursive process of seeing something as something can make the related things and their relationships and reasons unconcealed and visible. In perception, seeing discovers perceived entities in their purest and simplest, primordial "ways of being" (Heidegger, 1926/1992, p. 33) as they are seen at the present-at-hand. Thus, what is seen is always true, even if the ways of being are sometimes inaccessible and non-perceivable (Heidegger, 1926/1992). When something points to something else to be seen as something, it "acquires a synthesis-structure" that allows the something to be covered up (Heidegger, 1926/1992, p. 33).

Seeing things entails in itself understanding and interpretation, "the working-out of possibilities projected in understanding" (Heidegger, 1926/1992, p. 189) of what is seen. For example, when people encounter something within the world, it is seen and signified as a table. As such, it is seen as a totality and present-at-hand, not as a desk and four legs that are needed to compose something as a table. This interpretation of something as something is founded in and grasped from "something we have in advance" (Heidegger, 1926/1992, p. 33), which is not just preconception of a meaning of that object but an

understanding of the entity or, what Heidegger calls "Being," a universal and transcendent existence. A something is given a definite character by pointing it out in a mode of interpretation called assertion, which always entails some existing preconception about the interpreted something (Heidegger, 1926/1992). "Perception is consummated when one addresses oneself to something as something and discusses it as such," as "an act of making determinate" (Heidegger, 1926/1992, p. 89), and where asserted perceptions are depicted as propositions.

Only "Dasein," which means the individual themselves or "the subjectivity of the subject" (Heidegger, 1926/1992, p. 24), can have an existential meaning or meaninglessness. According to Heidegger, people perform actions as intentional acts and non-physical performances, "which are bound together by the unity of a meaning" (Heidegger, 1926/1992, p. 48) within the world, as the Dasein is in proximal correspondence with the world, in its culture of everydayness and from a temporal standpoint of presence, as Being-in-a-world, interpreting and applying its own and its world's traditions in an act of "historizing" (Heidegger, 1926/1992, p. 41). These traditions give the interpreting person a sort of explanatory framework which can obstruct the access to see the primordial Being-in-the-world of things (Heidegger, 1926/1992).

### 4.1.2 Strong and weak forms of representationalism

A conscious experience have an implicit reference to the external world, so experiences can be said to have representational content (Crane, 2011). Representationalism holds that phenomenal properties are identical or equivalent to certain representational properties, meaning that "whenever a content is represented in a certain way, it is represented" and "whenever a content is represented, it is represented in certain ways" (Chalmers, 2010, p. 342). There are different views about whether the representational content is identical with the experience's phenomenal properties (Chalmers, 2010; Gennaro, 2018; Tye, 2011).

According to strong intentionalism or strong representationalism, the phenomenal character of experience is one and the same as a certain type of a representational content, whereas weak intentionalism or weak representationalism holds that experiences which have the same representational content have the same but distinct phenomenal character (Chalmers, 2010; Tye, 2000, 2011). In strong representationalism, certain representational content always has a certain phenomenal feeling and "phenomenal properties entail certain pure representational properties" (Chalmers, 2010, p. 345).

However, the claim in strong representationalism makes it impossible to have unconscious mental representations (Chalmers, 2010) because if representational content and phenomenal feeling were identical, people would also feel their unconscious representations. Furthermore, if individuals would not experience any phenomenal character, neither would they have any corresponding mental representations. This is not plausible because, firstly, the

phenomenal character of an experience is experienced only in conscious experience (because experience is always a conscious phenomenon) and secondly, much of human mental contents in knowledge structures as mental representations is unconscious. Chalmers (2010) provides an alternative explanation that can solve this: an impure representationalism, where representational mental contents can have either phenomenal or nonphenomenal corresponding representational properties, such as a consciously experienced perceptual phenomenal representation for the content such as vision in the former case and, for example, an unconscious thought in the latter.

### 4.1.3 Schema and schemata

Every experience can be understood as having a certain type of content that belongs to the same content schema (Kant, 1781/2009; Rumelhart & Ortony, 1977/2017; Tye, 2011) or context frames (Bar, 2007; Fisher, 1998). Schema, schemata, or context frames can be described as spatially and temporally meaningful structures, scenes, ideas, or global representations of the world and its associated perceptual and semantic attributes in long-term memory. Objects and information are organized and clustered together according to some innate or acquired and learned, generalized and typical observation-manipulation-result patterns and causal, concept-cause-result rules (Bar, 2007; Maldonato, 2014; Solso, 2001; Thagard, 2012).

According to Piaget (1964/2003), in order for something to be seen as something, and for that object to become a stimulus for cognizing, the subject has to have some pre-existing knowledge structures or a schema with information that is somehow related to the information in the stimulus. "A stimulus is a stimulus only to the extent that it is significant, and it becomes significant only to the extent that there is a structure which permits its assimilation" (Piaget, 1964/2003, p. s14). A schema defines how the information of the stimulus is integrated in the subject's existing mental knowledges structures and how the subject reacts to that stimulus.

The concept of schema was explained in the work of Kant (1781/2009). Representations are organized in judgment so that multiple possible conceptions are collected into one representation. Conceptions are related to objects by their underlying, related representations in a way that these representations have meaning and make sense to the individual. General conceptions can be put into categories based on their logical and sensible relations between a subject, "a body" for example, and a predicate, "divisible" for example, in judgment, where the categorical judgment is "all bodies are divisible" (Kant, 1781/2009, p. 170). When categories are applied to phenomena and images are applied to general conceptions in the process of imagination, and when the apperceived representations are both intellectual and sensuous, these products of imagination can be called schemata (Kant, 1781/2009). According to Kant, in understanding, meaningful conceptions must entail some given object, a definition of whether and how they are related to the individual, how they affect senses, and that there

are pre-existing conceptions that also contain some formal sense conditions, which in turn determine to which objects that schema might be applied.

In line with Kant's (1781/2009) notion of schemata, Rumelhart and Ortony (1977/2017) suggested that the human memory system is a repository of information that is processed into structured network of relations that represent knowledge in memory, a schema, and where these interacting knowledge representation structures together form schemata. They are data structures that represent generalized concepts about objects, situations, and sequenced events and actions. Schemata represent stereotypes of the concepts of which they are constructed, and they can be imagined as "scripts" that define how specific prompts of those concepts are enacted in memory processes. As Rumelhart and Ortony put it, "The purpose of a schema is that of a cognitive template against which new inputs can be matched and in terms of which they can be comprehended" (1977/2017, p. 131) . According to this view, templates are representations. For example, in case of perceptual experience, external sensory signals are matched with these template schemes to recognize and classify patterns which, in turn, are transformed into meaningful experiences (Lindsay & Norman, 1977).

According to Rumelhart and Ortony (1977/2017, pp. 101–109), schemata have some essential characteristics. They are representative of knowledge and general concepts that can exist in different levels of abstraction, ranging from action sequences to story plots, and they have variables and are embedded within other schemata or even within themselves as recursive structures. These characteristics define some rules and constraints for schemata, how they are instantiated and how they activate related schemata by both bottom-up processing for activation of dominant schemata and top-down processing for activation of subschemata. Schemata contains symbolic, abstract, and non-linguistic representations of knowledge that can be expressed in language.

By describing schema, Rumelhart and Ortony (1977/2017) also characterized memory and its functions. Memory contains information in different levels of abstractions, varying from perceptual basic elements, to abstract concepts and sequences of events that occur over long periods of time. Perception can be defined as "comprehension of sensory inputs" (Rumelahart & Ortony, 1977/2017, p. 110), and actions can be understood as plans that also contain motor values. Thus, they both involve some instantiated comprehension and action schemata and their variables, which either confirm or reject the application of that schemata to adequately comprehend things, even in those cases where individuals are not observing anything but merely imagining and predicting. Different inputs and contexts are associated with their instantiated plausible schemata in the process of comprehension, and the resulting interpretations are stored in memory. Schemata is also used to guide the reconstruction of interpreted fragments of those stored schemata that are retrieved from memory. Direct relations between new information and old memories are created by schemata's binding variables. Making inferences also involves the activation of schemata or subschemata in analogical reasoning, as

they help to make inferences about a whole, based on observations of some of its particular parts, according to what is typical by default for those variables (Rumelahart & Ortony, 1977/2017).

According to Rumelahart and Ortony (1977/2017), a new schema is constructed when new inputs are entered in the mind's information-processing system, and new variables for that schema are entered when a similar event is encountered. Variables of a schema represent the possible differences and the structure of a schema represents the consistencies of that schema. Learning can lead to acquisition of general schemata which can be developed into more specialized forms along gaining expertise. Also, in situations where individuals cannot find a matching overall schema and variables, a new schema is constructed. Existing schemas can also be modified and fine-tuned as an individual receives and converges new, more exact information with an existing information, or discards some irrelevant information from existing schemata, their properties, or variables (Rumelahart & Ortony, 1977/2017).

As Pennington (2000) notes, to understand oneself and other creatures, people tend to create causal explanations and attributions very easily. When an individual encounters something, an appropriate causal schema or context frame, which is construed of learned knowledge and past experiences, is activated, causing abstract generalizations and primed perceptions, thinking, understanding and inferences, emotions and empathy, actions to interact with that something in a certain way, and estimated expectations about own and others' behavior in the near and more distant future (Bar, 2007; Pennington, 2000; Solso, 2001). People can have special kinds of structures of learned information representations in their memories about ideal objects as prototypes and about other people, situations, and social worlds as social schemas (Pennington, 2000). Social schemas can be, for example, self-schemas or personal schemas about individuals, or prejudicial stereotypes about general social categories (Pennington, 2000).

### 4.1.4 Mental states, conscious states, and contents of mental states

Mental states, which can be thoughts, beliefs, hopes, wishes, desires, fears, perceptions, and imagines, have repertory of their related mentally representational and senseful contents or meanings with semantic properties (Crane, 2011; Egan, 2014; Fresco, 2012; Montague, 2016; Pitt, 2020; Saariluoma, 1997; Thagard, 2005; Van Gulick, 2012; Von Eckardt, 2012). The view that the mind's contents are independent of the external world is supported by the internalism thesis, as opposed to externalism, where there is "a deep connection between states of mind and conditions in the non-mental world" (McGinn, 1989, p. 1). Mental states need not be based on the brain or even neurons, but the thinking of an organism can be based on, alien forms of biological structures or artificial silicon chips, for example (Thagard, 2005).

Conscious states can be understood as those mental states that a person is aware of having, such as having a certain memory or experience, and which have

internal phenomenal properties or qualitative character, which means how things appear and are spatially and temporally structured in experience (Lycan, 2012; Van Gulick, 2012). According to Montague (2016), there can be several different kinds of conscious mental states, such as exteroceptive and somatosensory sensations, and conscious perceptions, thoughts, and emotions. A mental state is a conscious state only "if the subject is directly aware of being in the state" (Lycan, 2012, p. 219), but there can be many other mental states of which a subject is not aware. Perceiving an object such as a tomato, a piece of art, or a pine tree is to have an experience of some kind in which the perceiving individual has a mental image of that item that she imagines in a series of thoughts, as sequences of mental states, such as believing that they are perceiving an object that has certain properties, and that the item causes or otherwise appropriately relates to their perceptual and phenomenal experience (Pitt, 2020).

In introspection, a perceiving individual has mental states about their own experience and its representing objective features (Pitt, 2020). However, individuals are only aware of a small part of conscious intentions of the representation of the world, but not the underlying unconscious contents and mental representations, physical processes, structures or properties of the representative vehicles in different formats, which are responsible for producing certain behaviors and actions (Egan, 2014; Gennaro, 2018; Lycan, 2012; Saariluoma, 1992, 1997, 2001, 2005; Saariluoma & Hohlfeld, 1994; Van Gulick, 2012).

According to some theories of First-Order Representationalism (FOR), representational mental content and phenomenal properties are identical (Gennaro, 2018). According to the FOR theory suggested by Tye (2000), a mental state is phenomenally conscious when the content is intentional and abstract, at least in some cases non-conceptual, and, most importantly, it has what Tye (2000) calls "poised" content. Poised content means it can have cognitive impact and can make a difference to thinking and behavior (Tye, 2000). According to the Higher-Order Representationalism (HOR), a mental state becomes conscious when another mental state is directed to it. Thus, it is a mental state that a subject is aware of having with another mental state (Gennaro, 2018). There are more detailed theories under HOR, mainly the Higher-Order Thought (HOT) theory, where a thought is understood as having concepts, and Higher-Order Perception (HOP) theory, where the Higher-Order Representation is some kind of a quasi-perceptual or experiential state generated by internal attention mechanisms, which do not require conceptual content (Gennaro, 2018; Lycan, 2012). In HOT theories, the mental states can be in unconscious, conscious and world-directed conscious levels or orders, so that for example an unconscious HOT state can direct a conscious HOT state (Gennaro, 2018). HOT approaches consciousness as a form of self-awareness, where an unconscious mental state is generated to a conscious higher-order state with the same content that an unconscious state has. This way the content of the unconscious state is brought into conscious higher-order awareness (Van Gulick, 2012).

There seems to be some differing or sometimes even synonymous ways to use the terms "mental states" and "mental representations" in literature which require some clarification. As Harré (2002) explains, mental states have been used to describe individual's material brain states in metaphorical, mentalistic terms, such as being in a certain state, just as thinking or dreaming would refer to some related brain state. The term "mental state" has also been used as an abstraction of an immaterial state that is an outcome of an imaginary, computational Turing machine, impersonating the products of human thinking (Harré, 2002). Bly and Rumelhart describe cognitive science as "the study of mental representations and computations and of the physical systems that support those processes," (Bly & Rumelhart, 1999, p. xv) including scientific investigation of the brain and other natural or artificial systems that have different internal states enabling complex behavior. However, Harré (2002) criticizes the use of the term "mental states" and proposes it should be used cautiously in cognitive science and cognitive psychology, as it might easily lead to confusion about to what it really refer. Because of the easy confusion by the term "mental state," perhaps it would be safer to only use the term "mental representations" when describing the content of the conscious experience.

## 4.2 Alternative theories of the mind

There are numerous other philosophical theories of the mind and consciousness, such as sensorimotor theory, biological naturalism, neurophenomenology, virtual reality theory, qualia realist theories, and many others (see Revonsuo, 2010; Van Gulick 2012). For example, the multiple drafts theory by Dennett (1993) proposes a somewhat different view of consciousness than RTM. According to Dennett (1993), there is no internal subject, neither internal phenomenal "Cartesian theater" in the brain where a little homunculus-like "self" would be the spectator of subjective experiences, nor are there any special qualitative or phenomenal properties that would sharply differentiate between conscious and unconscious content.

The difference between conscious and unconscious states or contentful representations depends on their influence and impact on other mental contents during brain's subsystems' and modules' interpretation, where these systems incorporate the data into kinds of fictional narratives (Dennett, 1993; Revonsuo, 2010; Van Gulick, 2012). Competing streams of information try to access output systems and the information that has won the access is then expressed in outputs such as behavior and speech, only then constructing a coherent narrative of consciousness and a fictional subject called "self" (Dennett, 1993; Revonsuo, 2010; Van Gulick, 2012). However, according to Chalmers, Dennett's multiple drafts theory is more about "explaining the reportability of certain mental contents" (Chalmers, 2010, p. 12) than explaining the conscious or its contents.

A similar idea to Dennett's model has been presented by Beach et al. (2016) in a theory they call "the narrative mind." The content of consciousness is filled with messages from the brain's subsystems containing memories, sensory imagery, and emotions, which are ordered and directed into a temporally and causally structured, coherent conscious experience by a narrative constructed by a subsystem called "the interpreter." This narrative can be further divided in to two different kinds: chronicle narratives that are about events in the present and the future, and procedural narratives "about how to do things" (Beach et al., 2016, p. 171). Mental narratives can be understood as essential feature of the conscious mind, as experienced or imagined events and acting agents, including oneself, are given meanings, positions, causes, effects, and purposes, in reality constructing, sense-making narratives in thinking and conscious experience (Beach et al., 2016; Hiles & Cermák, 2008; McAdams, 2017; Singer, 2004). A view where mind is understood as a narrator that creates predictions about future events is discussed next.

## 4.3 Mind as a predictive narrator

To be able to navigate and adapt in the world, to interact with physical, non-living, and social, living entities in it, and to achieve those goals, an individual sets to oneself, that individual's mind needs to be able to make judgments, estimations, plans, and expectations about the causalities and the results of one's and others' actions, with a minimum number of errors as possible. Predictive coding theories propose that mental processes work to anticipate future interactions and events according to a central mechanism that aims to minimize errors in estimations and inferences (Bar, 2007; Vance & Stokes, 2017) as a "probabilistic, hierarchical and dynamic" (Vance & Stokes, 2017, p. 87) process.

Prediction can be understood as a fundamental computation that is continuously executed on multiple brain levels, from cells to their assemblies and networks, generating objects, scenes, and concepts that lead to subjective percepts (Fekete et al., 2018). According to Fekete et al. (2018), relevant external stimuli that disrupt the computated predictions can alter brain trajectories and cause different experienced perceptual and phenomenal changes. The change in experience depends on the strength, or the "pull," of the stimuli (Fekete et al., 2018). Here, it is important to note that a conscious experience is not only dependent on specific sensory stimulation, but it can be understood by a computational, predictive, and inferential tool that is working constantly in the background, providing machinery and contents and also for daydreaming, future planning and projections, imagining, rumination, and others (Bar, 2007; Fekete et al., 2018).

What is notable about the view of hierarchical predictive processing or coding and some other similar views is that perception, cognition, and action are understood as unified and continuous; they and the environment are co-affected

by and co-affective to each other. Interpretations and predictions that are proactively made in the brain combine the incoming, ambiguous sensory signals and unconscious prior knowledge into reliable representations based on brain-calculated probability inferences that follow a Bayesian framework and rules therein (Bar, 2007; Clark, 2013, 2016; Ernst & Bülthoff, 2004; Fekete et al., 2018). Predictions as representations that are modified by the incoming prediction error signals from sensory modalities, as well as by other high-level processing, reduce prediction errors and guide perception, attention, and actions, along with enabling learning, recognition, and ability to make inferences (Clark, 2013; MacPherson, 2017).

The recognition process involves two aspects: continuity recognition and cognitive recognition (Haikonen, 2012). Continuity recognition means the ability to perceive an object, either familiar or not, as the same even though the perceived object's appearance (in case of visual perception) could change due to movement, a change in viewing distance, angle, position, situation, time, orother similar reason (Haikonen, 2012; Zeki, 2009). Cognitive recognition relates to how encountered words and objects, such as works of art, can remind individuals of something that they might be or what they might afford them to do, drawing from the memory and prior experiences that individuals can associate with the cues provided by objects' sensory features, and from the context of the encountered event (Haikonen, 2012; Saariluoma, 2012; Zeki, 2009). According to the dual-process models, recognition memory which causes a judgment that something has been experienced before is further supported by two distinctive forms of retrieval processes called familiarity and recollection, each with their distinct correlating neural structures and mechanisms (Rugg & Curran, 2007; Rugg & Yonelinas, 2003).

Familiarity-based recognition might be related to fast, undifferentiated, acontextual, rather automatic and strength-like information (Rugg & Curran, 2007; Rugg & Yonelinas, 2003). The explanations for the functional basis of familiarity differ, with some theories suggesting that familiarity relates to matching observed cues with previous information, whereas others suggest that it relates to the repetition of stimuli and perceptual and conceptual stimuli (Rugg & Curran, 2007). Recollection can be understood as a slower and more effortful process retrieving functionally distinct, detailed and qualitative, consciously accessible information about prior occurrences and events with their specific features and contexts (Rugg & Curran, 2007; Rugg & Yonelinas, 2003).

Several cognitive models of the mind exist, and many bear some resemblance to one other and the predictive coding theories. For example, Fodor (1983, 1985, 1992) proposed in his "Modularity of the Mind" thesis (Fodor, 1983) that the mind is composed of domain-specific, informationally encapsulated, fast and mandatory inference-making modules (mostly related to perception) that entail clusters of properties. In addition, there are non-modular, unencapsulated "higher-level" cognitive processes and faculties that involve slower, deeper, global, and voluntary executive processing that integrates information across different domains (Fodor, 1992). This view is similar to dual-system or dual-

process theories of higher cognition that suggest there are two qualitatively distinct types of processes related to thinking: a fast, intuitive, and autonomous process, and a slow, reflective, and deliberative process that is engaged with the working memory and its resources (Evans & Stanovich, 2013; Kahneman, 2011; Kahneman & Frederick, 2006).

Evolutionary psychologists such as Cosmides and Tooby (1994) propose that there are no general-purpose cognitive mechanisms, but the mind is organized in adaptive, domain-specific cognitive systems, or modules, where each specialized subsystem has evolved to solve specific problems faced by humans' hominid hunter-gatherer ancestors in the Pleistocene period. It is important to note here that in evolutionary psychology, "module" usually refers to functionally individuated cognitive systems that are adaptations of information process mechanisms, not to physically distinct, isolated brain systems (Barrett, 2012; Hufendiek & Wild, 2015). As the extensive number of examples from neuroscientific and psychophysical research has suggested, it seems that people can acquire knowledge and become conscious of different perceptual events and their incoming stimuli through many independent, spatially, and temporally spread unconscious thought processes that are autonomously processed in separate cortical areas (Zeki, 2001; 2009). The separately processed information in these areas or activation nodes is integrated in multiple stages and the activity in each of these nodes can have their individual conscious correlate. As suggested by Zeki (2001, 2009), instead of having just one consciousness, humans seem to have several, temporally distinct micro-consciousnesses which all contribute in their own part to the knowledge acquisition system in the subject's mind.

In a hybrid cognitive architecture called Adaptive Control of Thought – Rational/Perceptual-Motor (ACR-R/PM) (Anderson et al., 2004; Bermúdez, 2016), the cognitive architecture has two layers, a symbolically represented cognition layer that consists of a declarative ("knowing that" layer) and a perceptual-motor layer of more general, procedural ("knowing how") knowledge (Bermúdez, 2016). There is a set of specialized, independent, parallel functioning modules or components, such as visual, manual, declarative, and goal modules, and a central production system that coordinates the behavior of those modules (Anderson et al., 2004; Bermúdez, 2016). A central production system recognizes information patterns and integrates the information that is necessary to cognition in cycles of cortico–striatal–thalamic loops (Anderson et al., 2004; Bermúdez, 2016). The Learning Intelligent Distribution Agent (LIDA) model by Madl et al. (2011) understands humans and other creatures, such as animals and artificial ones, as autonomous agents who are continuously assessing their environments and making active and appropriate choices about their next actions. Complex cognitive processes and tasks related to perception, understanding, imagination, problem solving, decisions, and actions are operated in various modules in different brain areas in repeated cycles called cognitive cycles (Madl et al., 2011). These cognitive cycles are understood as "the fundamental building blocks of all human cognition" (Madl et al., 2011, p. 1).

Cortical areas are connected to other relevant areas in a functionally specified networks, continuously exchanging predictions and error signals in a concurrent and reciprocal manner at varying temporal and spatial scales, while constantly weighting projections based on prior knowledge and the changes of the body and environment (Fekete et al., 2018; Zeki, 2001, 2009). The model of predictive brains and predictive processing also suggests that the mind is a pro-active system that is embodied, enactive, and embedded in the environment (Clark, 2013, 2016), where individuals are embodied agents who are potentially poised to act (Clark, 2016). As Siegel (2014) notes, "Phenomenologically, perception feels quite different depending on whether it is dominantly structured by our roles as agents or not" (Siegel, 2014, p. 25).

## 4.4 Embodied, embedded, enacted, and extended mind

It was long thought in philosophy that there was a distinct division between the mental and corporeal aspects of the mind. A typical example of this kind of thinking is the Cartesian ontology by Descarters (1641/1996), where the mind and the body are composed of their own kinds of substances and properties, where the body is the same for all, but the mind is different and unique for each person (Descarters, 1641/1996; Harré, 2002). Descartes' dualistic view of the mind and the body as separate entities, and where only thinking is what defines the individual as "me," has since been often criticized. However, Descartes (1641/1996) does write about how, in order to form any conclusions about the present external world, an individual needs to not only examine their direct sensory perceptions, but also apply the knowledge of the past from their memory in the process of understanding. Thus, Descartes (1641/1996) provides interesting and important views about thinking and perception as cognitive processes which can be understood as explanations of how people make sense of not only their thinking, but also of their perceptions and bodies in an intersubjective manner.

According to Descartes (1641/1996), an individual can sense, feel, think about, and move their own bodies, as well as make separations and find similarities between their own bodies and those of others. The mind becomes aware of the body not because the individual can directly sense or imagine something in the body, but because these immediately perceived bodily sensations, pains and pleasures, appetites and passions are recognized, judged, and understood in "a certain passive faculty of perception" (Descartes, 1641/1996, p. 101) and some other active faculty which is located in a different substance and separate from the "me" as the thinking thing, a res cogitans, itself. According to Descartes (1641/1996), the individual's sense of existence is based on the individual's ability to think, where thinking includes feeling, and an ability to think about one's own existence. In this sense, a human being is "a thing which thinks" (Descartes, 1641/1996, p. 65), a thing "that doubts, affirms, denies,

that knows a few things, that is ignorant of many [that loves, that hates], that wills, that desires, that also imagines and perceives" (Descartes, 1641/1996, p. 70).

Another approach called "the embodied mind" proposes that humans are interwoven mind-body entities, in which their bodies and their distinctive biological characters and organs shape their cognition and vice-versa in their thinking, emotions, perceptions, experiences, and (inter)actions; how humans are situated and behave in the real, lived world, is embedded in their internal and external environments, physically and socially (Clark, 1999; Clark & Chalmers, 1998; Gallagher & Zahavi, 2012; Varela et al., 2016). Action, perception, attention, cognition, and learning work together and affect each other within a joint biological framework (Clark, 1999, 2012).

The idea of an embodied mind is not a new one. The outlines of this concept can be traced back to the psychophysical interactionist view of Plato (Saariluoma, 1985; Plato, 360 BC/2001) and Aristotle's' idea of the soul (psyche) and body as an interactive ensouled entity (Aristotle, 1986; Saariluoma, 1985). According to Aristotle (1986), the mental soul gives life, movement, and ideal form and shape for its own, observable, and appropriate kind of body, to which the appropriate kind of soul belongs, actualizing the potentials of the body. "For it is by their partnership that the body acts and the soul is affected, that the body comes to be moved and the soul produces motion" (Aristotle, 1986, p. 142), "through some kind of choice and thought process" (Aristotle, 1986, p. 140). The soul itself and its mental states are moved by not only desires, wishes, perceptions, imagination, and judgements but also the states of the body (Aristotle, 1986; Saariluoma, 1985). The soul is composed of four faculties or layers, forming an entirety that also holds the body parts together (Aristotle, 1986; Harré, 2002; Saariluoma, 1985). The first faculty that is shared by all living creatures is a vegetative layer related to nourishment, reproduction, change and growth, and decay. Perception and sense of touch, or perceptive and desiderative faculties, distinguish animals from plants and make the faculty of spatial moving and locomotion possible. Because animals have at least the sense of touch, they can also feel pleasure and pain and have "the desire for the pleasant" (Aristotle, 1986, p. 162). The fourth faculty is that of an intellective or thinking that is composed of contemplating, problem-solving minds (Aristotle, 1986; Harré, 2002; Saariluoma, 1985). According to Aristotle, "whereas the sense faculty is embodied," the faculty of intellect "whereby the soul thinks and supposes" (Aristotle, 1986, p. 202) is not.

Similar ideas to those of Plato and Aristotle are displayed in Spinoza's thinking. Spinoza proposes in his work, "Ethics," originally published in 1677, that "mind and body are one and the same thing which is conceived sometimes under the attribute of thought and sometimes under the attribute of extension" (Spinoza, 1677/2018, pp. 96–97). Mode of attribute of thought as idea has a corresponding mode of attribute of extension as body in causal and conceptual relationship, making the modes of the mind and the body the same (Spinoza, 1677/2018). This philosophy challenged Descartes' (1641/1996) Cartesian dualism in which the mind and the body were seen as composed of two separate substances.

As Gallagher and Zahavi put it, "It is just an empirical fact that we are indeed embodied, that our perceptions and actions depend on the fact that we have bodies, and that cognition is shaped by our bodily existence" (2012, p. 149). The evidence is strong and can be highlighted throughout findings from the fields of neuroscience to developmental psychology to biology. As an example, Lakoff and Johnson (1999) explain how humans' rational thinking can be seen as resulting from their bodily capacities and their particular neural configurations that operate according to certain computational principles. Humans' bodily sensorimotor systems effect the ways how they understand what is real, how they categorize, how they conceptualize things, and eventually, how they experience the world (Lakoff & Johnson, 1999, pp. 17–20).

The term "embodiment" can refer to multiple concepts. According to Reinhardt and Locke (2013), embodiment can be defined as body being central to cognition, as it is the mediating instrument for being in the world, for self- and social reconstruction and engagement. Embodiment can refer to "both the embedding of mental processes in the living organism and to the origin of these processes in an organism's sensorimotor experience" (Fuchs, 2011, p. 199). It can be seen as being-in-the-world, following the Heideggerian vision that "the being of humans is simply practices […] that take place in the instrumental networks that partly realize them" (Rowlands, 2010, p. 59). According to MacLachlan (2004), the way of being-in-the-world means the embodiment in the sense of self, where consciousness constructs meaningful wholes of internal and external events and of both biological and social representations of the self, patterned by and included emotions (MacLachlan, 2004). Embodiment is apparent in agency, the sense of being-a-body that is created by the coordination of intention and motor action (MacLachlan, 2004). The sense of agency emerges when the results of person's intentional actions correspond with the intended outcomes, creating feeling of being in control of one's own body and movements, as well as controlling the external environment by own bodily actions (Kannape & Blanke, 2012; Tsakiris et al., 2006).

Embodied reflection refers to a mindful reflection of experience and as an experience itself, "where body and mind have been brought together" (Varela et al., p. 27) and when the reflection is performed with mindfulness or awareness. This kind of embodiment can be seen in the activity of experts, for example in the performance of athletes or artists, where the mind and body are fully coordinated, and physical actions are executed in full awareness – the connection between intention and act has become closer, almost invisible mind-body unity (Varela et al., 2016). Embodiment can be exemplified in gestures, where those are used together with speech to create an integrated communication system. Thus, gestures can be viewed as a form of embedded thoughts (MacLachlan, 2004).

Embodiment also concerns cultural artifacts, which can be seen as transcending objects that embody their creators' individual and cultural ideals (MacLachlan, 2004). For instance, graffiti can be understood as symbolically embodied artefacts that, through graffiti spectators, create re-embodied images of writers' subcultural identities and physical bodies (Hannerz, 2017). These

graffiti artifacts can convey social or symbolic meanings, for example, by expressing membership in one's peer group (Schacter, 2008). As noted by Danto (2017), like the mind is in an intertwined and inseparable relationship with the body, so is the meaning embodied in the artwork. Even the human body itself can be viewed as a cultural object, where a person's symbolic identity is distinguished, evaluated, and communicated in their own body through psychosocial processes and practices that are expressed through their body's appearance and activity (MacLachlan, 2004). This cultural objectification can be seen clearly in masculine versus feminine cultures, where men are often characterized as tough and aggressive and focused on material success in masculine cultures, and women are characterized as tender, humble, and focused on quality of life (Hofstede et al., 2010).

According to Noë (2004), the environment is perceived as different affordances and possibilities that enable action, movement, and sensorimotor contingency. As proposed by Gibson (1986, p. 127): "The affordances of the environment are what it offers the animal, what it provides or furnishes". Affordance gives an individual an explanation of how something is used and what it does, and what it can do for them. The experienced affordance is relative to both the environment and the subject's own posture, behavior, and activity in that situation; it can concern objects and interactions and can also have a social significance (Gibson, 1986; Saariluoma, 2004). "The enacted mind" refers to the enactive approach to perception where an object of perception is phenomenologically present to the perceiver, as the object is a continuous store of information that can be explored by directing the subject's attention to that object at will. One's ability to perceive their world is made up of their sensorimotor knowledge, their expectations about how the object relates to them and their moving bodies, and of their ability to act in the world (Rowlands, 2010).

Actions upon an external environment make the information that is present in the information-bearing external structures available for the cognizing organism (Rowlands, 2010). The external components that are provided by the organism's physical and social environments can affect their thinking, direct their behavior, and enhance their functional capacities by assisting the externalization and cognizing of their memories and thinking with the support of language or physical artifacts (Clark & Chalmers, 1998). An organism can deploy, utilize, and manipulate the information that is partly embedded in environmental structures and objects in such ways that the load and complexity of cognitive processes in the brain can be reduced and the content of the mind can be extended (Rowlands, 2010). For example, people can use their fingers to help their minds to make mathematical calculations outside their brains (Clark, 2012). Humans can harvest and mold metals and other raw materials and turn them into technologically sophisticated devices to create calculators, which they can then use to make even more complex mathematical calculations outside their brains, and which can extend their otherwise limited cognitive capacities to the objects in external world (Clark & Chalmers, 1998). Thus, individuals can extend and share information with other human creatures by not only speech or gestures, but also via

manmade artifacts that embody and convey symbolic meanings, from, for instance, finger-made markings in sand, to traffic signposts, to social media platforms and works of art or graffiti.

Finally, among cognitive scientists, there are several approaches and interpretations on embodiment and the embodied mind, or an approach that can be called 4E cognition (Newen et al., 2018). Proponents of the 4E approach are partaking in an ongoing debate on whether, and in what ways and degrees, cognition is embodied, embedded, extended, and enacted in intracranial, bodily, and environmental processes (Newen et al., 2018). For example, the cognitive process can be understood as being embodied in "strong" or "weak" ways, being partially constituted or only partially dependent by an agent's bodily or extrabodily processes or the individual's ability to act (Newen et al., 2018). Some of the embodied approaches are in line with more traditional cognitive scientific representational/computational models, accepting that the mind is both representational and embodied, whereas others are more radical, explicitly anti-representational and/or anti-computational (Newen et al., 2018), because the world itself is a direct, external representation of agents' actions (Dawson, 2013).

For example, the view of the embodied mind discussed in Dawson (2013) describes how embodied cognitive science asserts cognition's purpose as directing an agent's "actions upon the world" (Dawson, 2013, p. 205) and where that individual's bodily senses, structure, and abilities to act in specific situations in its world become essential components in understanding the mind. The approach of embodied and extended cognition can be understood as a reaction against the methodological solipsism in traditional cognitive science that holds a "classical sandwich" view, where the cognitive agent's separate and unequal perceptions and actions are mediated by thinking in iterative sense–think–act cycles and the mind is disembodied (Clark, 2012; Dawson, 2013). According to Dawson (2013, p. 208): "The embodied approach replaces the notion that cognition is representation with the notion that cognition is the control of actions upon the environment."

Clark acknowledged that human minds "are at the very least in deep and critically important contact with human bodies and with the wider world" (Clark, 2012, p. 275), and that their bodily characteristics and interactions with the world in some sense inform how humans sense, perceive, think, feel, learn and act, and move. However, Clark (2012) promoted a view called "external functionalism," where the brain, non-neural body, as well as the world "are apt to provide the physical machinery that implements (some of) the abstract organizations that turn matter into mind" (Clark, 2012, p. 284). According to this view, artefacts in the external world are integral to intellectual activities and cognizing, such as organizing information into a logical order that represents contents of some appraised schema or mental model, or into whole new assemblies, representing operations of restructuring. A body part, such as a finger, an external artefact, and interface; a medium, such as paper and pen; or a calculator can become, at least sometimes, an augmented part of intelligent mental actions in problem-solving, as a form of complementary cognitive extension or "external symbolic

storage" (Clark, 2012, p. 282; Clark & Chalmers, 1998). The external functionalistic view supports the weaker claim of 4E cognition where cognitive processing is based on the "core biological bundle" (Clark, 2012, p. 286), the mind is a representative thing, and the activities that happen across the brain, body, and world can cause representations and thinking, even though there can also exist solely internal information-processing entities (Clark, 2012).

## 4.5 Representational, predicting and embodied mind

This chapter has waded through some of the theories of the mind as a consciously experiencing "thing." Humans can be understood as autonomous, intentional, enactive, and social agents who interact with the world by receiving, processing, and making sense of the information obtained from their internal and external worlds. Humans' experiences and behaviors are driven, guided, and modified by thinking and emotions, future goals, experiences, and memories. While the brain can be understood as a mediating organ that is constantly in a meaningful interaction with its environment, comparing actions to past events, and enabling experiences and behavior, the conscious experience of the human mind is more than what happens in the brain.

Representationalism is a philosophical position about consciousness and the mind, which is usually supported by traditional cognitive scientists. It assumes that different mental states that represent the world have some intentional content with certain phenomenal properties that makes them feel a certain, meaningful way. This gives the experiencing subject information about the external world and its objects in a certain manner. Mental representations are structures of semantic information in the mind, which are represented in various formats, such as in analogical or pictorial forms, or in a certain way, for example, in belief, functionally, or in sensory-specific manners. As a conscious experience represents the world, it also has representational content.

According to representationalism, each experience can be understood as having a certain type of content that belongs to the same content schema. Schemata can be described as spatially and temporally meaningful structures or scenes of the world and their associated perceptual and semantic attributes in long-term memory. A schema defines how the information of the stimulus is integrated into the subject's existing mental knowledge structures and how the subject reacts to that stimulus. Learning can lead to acquisition of general schemata, which can be developed into more specialized forms. In situations where individuals cannot find a matching schema, a new schema is constructed. Presumably individuals can also have special types of learned schemata about ideal objects, other people, situations, and social worlds, which can also affect their interpretations and experiences about graffiti and other individuals, such as graffiti artists, as noted in Article V.

There are numerous other philosophical theories of the mind and consciousness, such as the multiple drafts theory and the theory of the narrative mind. Predictive coding theories propose that mental processes aim to anticipate future interactions and events, try to minimize errors in estimations and guide perception, attention, and actions, and enable learning, recognition, and ability to make inferences. The mind is a proactive system that is embodied, enactive, and embedded in the environment. According to some other theories, the mind is composed of domain-specific, informationally encapsulated, and inference-making modules or is organized in adaptive, domain-specific cognitive systems, where each subsystem has evolved to solve specific problems. Humans seem to have several temporally distinct microconsciousnesses, all of which contribute to the knowledge acquisition system in the subject's mind. According to the hybrid cognitive architecture ACR-R/PM model, the cognitive architecture is composed of a symbolically represented cognition layer that comprises declarative knowledge and a perceptual-motor layer of general, procedural knowledge. In addition, humans are also interwoven mind-body entities with embodied minds, who interact with their social and physical worlds, as suggested by the embodied approach and the view called 4E cognition.

How does the rather checkered picture of the aforementioned theories and 4E cognition fit into the theoretical framework and assumptions of this thesis research? As Newen et al. (2018) stated, there are embodied approaches that accept both the theory of representational mind and the embodied mind. However, as the authors in Article VI explained, the proposed approach takes from theories of representational mind and 4E cognition, in addition to other approaches such as the information-processing theory of thinking (Newell & Simon, 1972), production systems (Anderson, 1983; Anderson et al., 2004), and schema theories (Neisser, 1976; Rumelahart & Ortony, 1977/2017), and develops them one step further. The information contents in mental representations can be investigated by analyzing the information contents in protocols from individuals with different levels of graffiti expertise and grounding theory on those information contents. In Article VI, the authors call such an approach "content-based thinking", "content-based cognitive science" or "content-based psychology."

Embodied cognition and various embodied organism-environment interactions are also important in aesthetic experiencing and meaning-making of art, as argued by, for example, Johnson (2015) and suggested in Articles I–III, V and VI. Constructions of meaningful interpretations and predictions of things and events when an individual encounters artworks or other sources of aesthetic experiences aim to ensure the creature's well-being and a sense of systemic equilibrium (Johnson, 2015). Individuals' perceptions of objects such as artworks, affording possibilities to engage in mind–body actions, and roles of those objects in social contexts in past, current moment and possible future events, constitute a complex cluster resulting in an experience with different meanings (Johnson, 2015). They can include associated aesthetic emotions and values in the form of mental stories. As Johnson (2015) suggested, aesthetics should be understood as

a form of embodied meaning-making and embodied experience of meaning, where "ways of meaning-making emerge from the nature of our bodies, the way our brains work in those bodies, and the structure of the environments with which we are in continual visceral interaction" (Johnson, 2015, p. 36). Art, according to Johnson, can evoke emotional experiences and enactive responses and bring "to fulfillment of the possibilities for meaning that have their roots in everyday experience" (Johnson, 2015, p. 36) and in embodied lives. Based on these notions, it can be assumed that experiencing graffiti entails embodied meaning-making where the experiencing individual interacts with the artefact as well as other imagined or real people, as discussed especially in Articles I–III and V. This mind–body interaction can lead to different types of aesthetics and other types of experiences, as well as understanding of an individual's own and others' mental contents.

# 5 MENTAL CONTENTS OF EXPERIENCE

After explaining what is meant by conscious experience, along with the conscious processes that underlie them, as well as some of the essential characteristics of the experiencing human mind, it is time to explore different types of information content in mental representations. It should now be evident that mental systems have perceivable and nonperceivable contents, both of which contribute to the creation of knowledge in mental information processing systems and which construct the representational mental contents that are experienced during a conscious event. However, mental contents can be categorized in various ways and types. This chapter focuses on some of the most common philosophical descriptions of various mental contents.

This chapter begins by explaining phenomenal contents of conscious experience. It then explains conceptual and non-conceptual content of experience, and briefly looks into propositional attributes and analogies. The following sections then continue on to explain conceptualism, the "fineness of grain" and "richness of experience" arguments, and the phenomenal properties of mental contents. This chapter ends by presenting differing types of representational information content, ranging from Russellian content to multiple contents view.

## 5.1 Phenomenal content of experience

The content of an experience represents an object as being like something and that a specific thing has certain properties, e.g. "a thing *x* is *F*" (Siegel, 2006, p. 482). For example, when seeing a ripe red tomato, the subject has a visual experience that represents the experience of a tomato (a thing) having a red surface (the property of being *F*), with its associated sensory phenomenology (redness feels like something) (Siegel, 2006). Silins (2013) describes phenomenal content with the following definition: "For any experience *e* and any content *c*, *c* is a phenomenal content of *e*, just in case every experience with the same phenomenal character as *e* has *c*" (Silins, 2013, p. 20). In the case of a perceptual

experience, phenomenal content can be described as "a representational content that is determined by the experience's phenomenal character" (Chalmers, 2006, pp. 50–51). Byrne (2011) notes that there can be phenomenal but also epistemic or comparative content in experience. Epistemic content consists of factual and comparative content for relational content (Crane, 2011). Propositional content or propositions are understood as bearers of truth-value and meanings of demonstrative sentences. However, according to Crane (2011), propositional content should not be confused with the content of experiences.

In a phenomenal experience the mind has representational content that is felt like something (Chalmers, 2010). A phenomenal experience can be understood as a mental representation of an object or an event or a "something" that has some sort of properties or mental attributes (Saariluoma, 1997). Attributes describe what that something is like, and those attributes are associated with its likeness or the phenomenal character of the experience (Saariluoma, 1997). Views about the content of perceptual experience can be taken as an example because perceptual experience presumably has somewhat similar content and processes to the overall experience.

In general, there are at least two views on the richness of properties or attributes in visual or other perceptual experience's content. According to the sparse or "thin content view," individuals can only experience low-level properties (i.e. color, shape, position/location, size, texture, motion, etc.) in visual experiences, for example: 'A thing is red and round' (Macpherson 2011; Toribio, 2018). According to this view, everything else is the result of cognitive information processing that occurs in perceptual consciousness, thus leading to different perceptual judgments (Toribio, 2018). "Rich content view" proposes that humans can also experience high-level properties or contents (i.e., everything else besides color, shape, position/location, size) in visual experience, due to the cognitive penetration, thus experiencing something as some semantically meaningful kind of thing (as something as something), e.g. 'This is a tomato' (Macpherson 2011, 2012; Siegel, 2010; Toribio, 2018). Properties can be sensorially perceivable properties such as color and shape, but there can also be so-called "natural kind properties," which Siegel (2006, 2010) calls K-properties, that categorize objects, such as being a house or a pine tree, but also things, such as actions, mental states, or words (Siegel, 2010). There are als "semantic properties," such as texts and symbols (Siegel, 2006, 2010). High-level properties might include natural kind properties but also artificial kinds (e.g., being a bicycle), dispositional (e.g., being breakable), emotional, moral, and aesthetic properties, and possibly others (Macpherson 2011; Siegel, 2010; Toribio, 2018) which can be presented either perceptually or causally, depending on the experienced thing's low-level properties (Stokes, 2014).

Arguments vary regarding what kind of properties are included in the rich content view. For example, Price (2011) argues that even though objects appear to include a wider set of properties than just colors, shape, location, and size, those properties do not include something like natural kind properties, such as something being a tomato. An opposing view is that different people, for

example novices and experts, can simply believe they are seeing something different, even though their phenomenal visual experience might be exactly the same (MacPherson, 2011, 2012). It might also be that people pay perceptual attention to different things and if everyone paid attention to exactly the same things, they would phenomenally experience the same visual experience, or also that people have gestalt shifts, which track appearance-types and not high-level properties (MacPherson, 2011, 2012; Toribio, 2018). However, at least some of the high-level properties might be part of the sensory phenomenology of visual experience, things that individuals can perceive but just not think about (Toribio, 2018). According to Toribio (2018), the ability to recognize high-level properties can be explained by evolutionary and species-specific reasons, since the ability to quickly and automatically detect certain high-level properties is important to an individual's survival along with their engagement in social interactions.

## 5.2 Conceptual and non-conceptual content of experience

A major issue in the contemporary philosophical discussion about mental content surrounds the conceptual and phenomenal content of an experience (Siegel, 2010, 2016). Concepts can be described on a general level as the possessed representations of psychological subjects that stand for knowledge of different classes, kinds, or categories of entities (Chuard, 2018; Murphy & Hoffman, 2012; Thagard, 2012). In their minimum, possessing a concept enables a subject to recognize, discriminate, and understand different and new instances of objects and properties in their contexts (Brewer, 1999; Chuard, 2018; Gennaro, 2018; Murphy & Hoffman, 2012). Concepts can be understood as learned constructions of meanings that are deployed in beliefs, intentions, wishes, doubts, and other propositional attitudes (Pitt, 2020; Siegel, 2016).

Propositional attitude can be explained as relations between persons (for example, "I" or "she" or "they") and propositions, which can be understood as abstract entities or non-analogical mental representations of the world that bear a semantic meaning and truth-conditions, truth-value, or references of sentences and items (McGrath & Frank, 2018; Rescorla, 2019; Saariluoma, 1997; Thagard, 2012). Propositional attitudes can be described as "relations between minds and mental representations that express the contents of the attitudes" (Fodor, 2008, p. 69). Examples of propositional attitudes can be one's belief and wish related to propositions (where the proposition is the object of one's belief/wish): "I believe that this is a round, red tomato," or "I wish that I will win the lottery tomorrow." In the former example, round and red are properties of a thing in an external world and attributes of a concept of a tomato in an internal mental representation. Beliefs can either aim to represent how the world is as world-locating or "de dicto," but they can also be representative of oneself, being self-locating or "de se" (Liao, 2014).

The content of experience can have references or truth-values that are stated as beliefs, and it can have or reflect a certain phenomenal quality, e.g., it feels as it does (Brewer, 1999; Chalmers, 2006; Frege, 1948; Lyons, 2017; Siegel, 2016). However, there is no agreement about what kinds of roles concepts and believes have in the content of an experience (Lyons, 2017; Siegel, 2016). For example, Chalmers (2006, 2010) proposes that there are also veridical and phenomenal concepts, such as when an individual as an experiencing subject has a belief that they are currently phenomenally experiencing something related to a certain (concept of a) thing (see also, Lyons, 2017). According to Crane (2011), an experience can also be representational without having a propositional attitude. It can represent something without an additional referential statement of a belief, a hope, a wish, a fear, etc.

Concepts either function as self-organizing or as a set of organized attributes, which can also be concepts that represent reality and are structurally analogous to it (Saariluoma, 1997). Concepts can be used independently in same or different contexts, but two different concepts cannot have identical attributes (Saariluoma, 1997). Concepts are empirically and interconceptually related to other concepts and single concepts can be combined and recombined to form compositional, complex strings of representations, creating a dynamic, conceptual, representational system (Chuard, 2018; Saariluoma, 1997). As Hofstadter (2001) suggests, concepts and their repertoires are built from smaller concepts into larger ones in a lifelong process of learning and chunking. Because of aging and learning, a person comes to possess bigger and more numerous mental chunks or wholes of conceptual structures, enabling them to perceive and understand larger and more complex, context-sensitive, detailed, and higher-level events that stretch over time and different levels of abstraction (Hofstadter, 2001).

Some mental concepts are innate and cannot be acquired by learning and experience, such as concepts of physical reality like color, or other concepts of inherited "brain programs" made up of organizing principles of information (Piaget, 1964/2003; Zeki, 2009). Some concepts are acquired after birth, where the concept of a thing is abstracted and generalized from all experienced cases of that thing. These concepts are learned and modified thorough the life in a brain-level synthesis of new information and information stored in memory from all the past occurrences in which the individual was exposed to things within a similar category (Zeki, 2009). Interaction and communication between people enables the acquisition of new concepts even without personal experience of that object. An individual can gain a conceptual understanding of a tomato even if they have not seen a tomato themselves, but just by hearing explanations of a tomatoes in conversations with other people (Thagard, 2012).

According to Zeki (2009), the brain can form concepts of particular things as well as concepts of more abstract notions, such as beauty, which do not exist outside the individual's mind. These concepts are formed as acquired, synthetic concepts that can transform into ideal forms of these concepts that exist in the individual's mind (Zeki, 2009). Through encountering and experiencing several

examples of a thing, an individual can acquire a synthetic concept of it, but also an ideal concept of the thing and what it represents. However, when the individual tries to apply that internal, subjective mental ideal into expression or interpretation of an actual, external thing, that actual object can only compare to some parts of those synthetic, ideal concepts of the thing that the subject has in their mind, thus, leading to a state of either satisfaction or dissatisfaction (Zeki, 2009).

Learned, subjective, high-level concepts guide perception, inferences, thinking, and goals in a sense that an individual tends to seek, employ, lean toward, and support the concepts they already possess (Hofstadter, 2001). Otherwise, the situation can lead to mental discomfort caused by cognitive dissonance (Hofstadter, 2001). Cognitive dissonance is an umbrella term for several biases that serve the individual to "preserve a positive image of themselves," (Pinker, 2011, p. 207) when any confronting or contradicting beliefs or information is altered to comply with one's existing, self-serving mental information. The kinds of inferences that an individual is able to and inclined to make can depend on their possession of concepts and their semantic or logical relations to other concepts (Chuard, 2018).

A concept can also be understood, essentially, as a package or bundle of analogies (Hofstadter, 2001). Thinking is moving between these concepts or bundles via mapping of multiple, associated, analogical connections (Bar, 2007; Hofstadter, 2001). Analogies can be understood like relational metaphors that convey primarily relational shared characteristics and project attributes and associated predictions to items, meaning there is a similar system of relations within the domain-specific base objects or concepts and the confronted novel target objects (Bar, 2007; Gentner et al., 2001). Similarity can be irrespective between sensorially perceived objects because similarity can also include other levels, such as having similar abstract dimensions or similar goals (Bar, 2007). As Bar (2007) notes, the analogy process is different from the recognition process because analogy focuses to answer the question "what is it like?" (Bar, 2007, p. 281) compared to recognition that tends to clarify merely what the object is. Analogies can also be emotional and about emotions; they can transfer or generate emotions, such as persuasion and empathy in the former case, and humor and interest in the latter (Thagard & Shelley, 2001).

Analogies are created in a process that involves sensory perception of new events and accessing abstract prior memories in long-term memory. Both can work as inputs to trigger mental categories in "an act of analogy-making" (Hofstadter, 2001, p. 503). For example, matching and labeling a newly encountered font type into a prior category of "Art Deco" or a graffiti piece as a "German Wild Style Graffiti", as exemplified with similar analogies in Article VI. In thinking, concrete or abstract objects and concepts are assigned in categories (Pinker, 2011). In early phases of a human life, a child only has a sparse and coarse set of categories that are available for analogy-making but these categories become sharper, more flexible, more numerous, and nuanced as an invidiual grows older and learns new categories, and how to name and publicly label at

least some of them (Hofstadter, 2001). For example, those categories that have been labeled by lexical items can range from simple words ("clock") to compound words ("alarm clock"), and from short phrases ("out of order") to longer ones ("and they lived happily ever after") (Hofstadter 2001, p. 504). Analogy-making can also involve mapping properties which can create stereotypical judgments and predispositions (Bar, 2007), as illustrated in Article V. Individual's high- and low-level perceptions are affected by perceptual attractors, such as lexical items that are shared with other individuals, vicarious experiences with or without linguistic labels, and unique, subjective memories without linguistic labels (Hofstadter, 2001). How an individual notices and explains events is also heavily influenced by their culture and language, along with the pre-defined labels that are provided for individual (Hofstadter, 2001).

However, other views has also been proposed regarding the underlying mechanisms of conceptual combination, which is the process that allows people to interpret meanings for new combinations of concepts (Keane & Costello, 2001). For example, Keane and Costello (2001) argue that conceptual combination is not based on analogies and how different domains of knowledge are structurally and relationally aligned by certain systematic principles. Instead, it should be understood as a process in which representations are constructed according to certain constraints, and where sources and nature of the related knowledge are accessed directly in one's memory (Keane & Costello, 2001).

Finally, there can be conceptual and non-conceptual perceptual attributes of concepts where the latter represent basic perceptual qualities and attributes of the world and sensations such as color, form, location, luminosity, pitch, pain etc. (Saariluoma, 1997). These elements are combined in a perceptual system into spatial and temporal perceptual experience, also called object perception (Saariluoma, 1997). Perceptual attributes are direct, non-symbolic, represent only themselves, and disappear when the object disappears from the perceptual field, although perceived attributes can represent something else besides just themselves. In order to make sense, perceptual attributes must be parts of a larger conceptual systems (Saariluoma, 1997).

Concepts consist not only of non-conceptual perceptual attributes, such as colors, lines, forms, and shapes, but objects and concepts can also have non-perceivable properties and attributes, respectively, such as semantic information related to and produced by their history, culture, and the associated traditions and myths (MacPherson, 2011; Saariluoma, 1997; Saariluoma et al., 2015; Siegel, 2006). Non-perceivable attributes, along with detailed perceivable ones, which an individual can recognize and identify, form a representational content with different sets of associated beliefs that can cause varying cognitive phenomenology of perceptual experience and might alter the overall phenomenal character of mental life (MacPherson, 2011; Siegel, 2010). As Saariluoma (1997) notes, because of the complexity of how concepts are structured, completely understanding a concept is practically impossible.

### 5.2.1 Conceptualism and conceptualizing

There are two main approaches to understanding how sensory perception and cognition relate to concepts. According to conceptualism, the possession of concepts and how they are used determine an individual's thoughts and beliefs and conceptual identification is also required in perceptual experiences for an individual to be aware of objects and features in their environment (Chuard, 2018). Conversely, the non-conceptualist approach proposes that sensory perception does not require conceptualization, but rather, concepts are deployed in later stages of cognitive processes (Chuard, 2018). Non-conceptualism has been significant in providing different explanations to questions related to how infants and animals can experience their environments without possessing concepts (Brewer, 1999; Chuard, 2018).

A philosophical view called belief conceptualism suggests that belief content is conceptual and that in order to have a belief (a propositional attitude) about an object and its properties, the person who is believing must have concepts of that object and deploy those concepts in their belief (Siegel, 2016). To put it simply, an individual has a mental concept of a thing ($x$) and a mental concept of what that thing is like ($F$), and they must have a conceptual belief that this concept and its attributes (attributed concepts) are true or related ($x$ is $F$) (Siegel, 2016). Similar to belief conceptualism, in order to have an experience about an object and its properties, in experience conceptualism, the person who is experiencing must have concepts of that object and deploy those in their experience (Siegel, 2016). According to this view, an individual's experiences depend on the concepts they have and are able to deploy; if an individual lacks a concept related to a certain object or thing, they are not be able to have any thoughts (or emotions or motivations) about that topic at all, nor could they have any beliefs about it (Siegel, 2016).

A subject can have an experience that employs a concept but, at least according to some views, experiences can exist without possessing and deploying conceptual knowledge. According to the content view, a subject can have at least a perceptual experience with non-conceptual content (Bermúdez, 2009). A person can make assumptions and judgments about experience's correctness even without possessing corresponding concepts (Chalmers, 2006; Siegel, 2010). For example, nonconceptual experiential content has the ability to possess both Russellian content (Russell, 1910, 1921), e.g., experiencing appearances of complexes of objects or their properties, such as the shade of an object, even without knowing what that shade is, and Fregean content (Frege, 1948), e.g., experiencing that the perceived object has that shade despite not knowing what the linguistic reference of that experience is, or having a concept that a specific object normally has a condition which causes that shade as its mode of representation (Chalmers, 2006, 2010).

A similar view relating to properties has been suggested by Siegel (2006): a property can be represented in experience even if the subject of the experience possesses no concept of that property. Some argue that there can be such a

representational richness of grain in perception that can exceed what can be captured by a demonstrative concept (Bermúdez, 2009; Peacocke, 1992). According to the "fineness of grain" argument, a subject can be able to determine and differentiate between some properties and discriminate representations with far higher fineness of grain in their sensory awareness than what they are able to conceptually identify (Brewer, 1999; Chuard, 2018; Laurence & Margolis, 2012). The number of concepts is also often outnumbered by the large number of details in perceptual experience, which is referred to as the "richness of experience" argument (Laurence & Margolis, 2012).

In cases where a subject receives sensory information that is not related to a concept, or lacks any adequate concept, or when an object or thing, like an abstract painting, is ambiguous or indeterminate (i.e. resisting of any sort of identification) (see Pepperell & Ishai, 2015), the subject's mind can nevertheless try to infer what an object is about, to make sense, understand, or identify it by comparing the subject's existing concepts with the incoming signals about the object (Brewer, 1999; Chuard, 2018; Gennaro, 2018; Zeki, 2009). By the process of matching and recognizing the objects and the events with the pre-existing mental content, the perceptual experience can also support or reject individual's existing beliefs (Chalmers, 2006; Rescher, 2013). To make sense of the world and things around them, an experiencing individual attempts to mentally match some distinctive characteristics that they can recognize from the formal appearance of a perceived thing (such as its visual gestalt) with individual's existing conceptual knowledge, stored representations, schemas, and learned associations, by inferring and interpretation. Results of this process are then judged and labeled with tokens that can include semantic content (Brewer, 1999; Byrne, 2011; Gennaro, 2018; Murphy & Hoffman, 2012; Pepperell & Ishai, 2015; Prinz, 2006; Solso, 2001).

Pepperell and Ishai (2015) argue that when assessing indeterminate objects such as artworks, the overall judgments can emphasize the importance of non-conceptual, formal properties of the object because in those cases it is more difficult and cognitively demanding to recruit attention to the features of the work and to associate and recognize the semantic content that draws from memory. However, subjects can be trained to recognize more objects and forms faster, thereby constructing more complex scenes, which supports the view that the process of experiencing from perception to recognition of familiar objects and judgments also depends on the amount of acquired conceptual knowledge that the subject possesses, and the contextual associations that the subject is able to make (Pepperell and Ishai, 2015; Zeki, 2009).

The object is given a token of representing some kind that is distinct from other kinds (Chuard, 2018). In other words, it is conceptualized or re-conceptualized and categorized (Prinz, 2006). Categorization forms one part of the basis of human cognitive processing (Scherer, 2009), even though it is not agreed whether representational examples of a category are based on some prototypical category member properties, or instead on some specific features as learned exemplars, or some mixture of these (Murphy & Hoffman, 2012). It is

proposed that humans begin to form categories that reflect the world and its structures and regularities beginning from early early life, in order to reduce the stimuli-related information so that it is optimized and manageable cognitively and behaviorally, grouping information in a way that also enables the acquisition of concepts (Scherer, 2009). In a phenomenal experience the conceptual and non-conceptual information and the emotional, cognitive and conative aspects are integrated into one (Scherer, 2009). Some components of the phenomenal character of experience can affect more than others according to how categories are formed (Scherer, 2009). Also, presentations of objects or features of categories are usually not very clearly defined and items can fall in or out of different category memberships in a subject's mind, depending, for example, on different times (Hayward & Tarr 2005; Murphy & Hoffman, 2012).

According to Thagard (2012), a concept, which can be very complex in its structure, can have semantic pointers or associations to sensory and emotional information, providing mental representations with content about what kind an object is and what value it has. With Thagard's (2012) semantic pointer view of concepts, the mathematically represented, neural-level information with dimensions of magnitude and direction that is processed in brain can be linked to the representational content of the mind and to motor, perceptual, and emotion- related information, thereby providing meaning for concepts as a relational process rather than a thing. Semantic pointers and their partial and deep meanings allow brains to process and manage different contexts and goals, language, and inferences (Thagard, 2012). According to Gallese and Lakoff (2005), the brain's sensory-motor mechanisms have adapted for purposes of language and reasoning and this neural exploitation can be understood as "a key aspect of human cognition" (Gallese and Lakoff, 2005, p. 456). Semantic pointers can also help to merge the competing views regarding the nature of concepts as 1) prototypes, where concepts are specified in mental representations by concepts' typical properties, 2) sets of exemplars, where concepts are stored as sets of examples, and 3) as parts of explanatory theories, also called as the theory-theory or knowledge view, where concepts relate to explanations (Thagard, 2012).

However, there can be also more abstract level concepts that do not have a very tight association with any sense experience. Those can be illustrated with cases of sensory concepts such as a "red" or "heavy" versus theoretical concepts such as "black hole" or "climate change" (Saariluoma et al., 2016; Thagard, 2012). Neither do all the concepts need to have strict definitions as they relate to other concepts in interaction with other people and the world (Saariluoma, 1997; Thagard, 2012). Chalmers (2010) proposes that a concept can be in a relational reference with an individual subject, but references of phenomenal typical qualities can also be fixed across larger communities. For example, when looking at a red tomato, an individual can phenomenally experience a concept of tomato being red, and when other normal subjects in their community look at that same red tomato, they will also experience phenomenal qualities typical for paradigmatic red tomatoes (Chalmers, 2010).

Acquiring more fine-grained concepts by learning can also change the subject's mental content, knowledge and beliefs, and conceptual repertoire, as well as how they categorize concepts. These, in turn, can cognitively penetrate and alter a subject's conscious experience, increasing its qualitative complexity, which can be noticed in substantial differences between experts' experiences and the more limited and coarse-grained experiences of novices (Gennaro, 2018; Hayward & Tarr, 2005; Saariluoma, 1997; Toribio, 2018).

### 5.2.2 Phenomenal properties of conceptual and non-conceptual content

As Pitt (2020) notes, there is still disagreement regarding if and what kind of phenomenal properties conceptual and non-conceptual states can represent. Some realists have traditionally assumed that only non-conceptual content, such as sensations, can have phenomenal features or character or qualia, meaning that the phenomenal content of an experience can only be nonconceptual, whereas some research suggests that there can be hybrid mental states, where non-conceptual and conceptual elements or beliefs are integrated (Pitt, 2020). For example, Toribio (2018) calls "hybrid constructs" those that include sensory and conceptual components as perceptual judgments, which differ from perceptual experiences that have only sensory phenomenology. In contemporary philosophy of the mind, there is also a view that conceptual representational states or conscious thoughts have their own kind of non-sensory, experiential cognitive phenomenology, having something special that it is like to consciously think a thought, which is different than and irreducible to sensory phenomenology (Montague, 2017; Pitt, 2020). According to this view, a variety of distinct cognitive-phenomenological properties are mapped to at least some very basic concepts and to a fine-grained representational content of conscious thought (Montague, 2017).

Cognitive phenomenology can also be present in perception and emotion (Montague, 2017) which can be demonstrated with examples such consciously thinking that watching artwork is interesting. According to Montague (2017), emotional episodes (i.e., emotions) have an additional distinctive kind of phenomenology called evaluative phenomenology, where objects and states of affairs in the world also have their own experienced, attributed, fine-grained, and objective emotion-value properties, such as sadness, disgust, wonder, joy, annoyance, etc. An example of fine-grained evaluative phenomenology could be to experience an artwork as slightly amazing to oneself and very amazing to someone else, and that is experienced in a different way of "amazing" than what one would feel like in an amazing fine-dining experience, or how the vastness of the universe would be felt as amazing. Importantly, emotions can be understood principally as evaluative representations that provide special kinds of awareness of the world, and which are experienced by the subject, rather than just known (Montague, 2017).

Chalmers (2006) argues that experiences can be associated with different sorts of contents, such as those that involve objects or those that are existential

ones by different content relations. An experience can have multiple representational contents, some of which can be phenomenal (Chalmers, 2006). There is no agreement among researchers about how cognitive phenomenology affects the determination of the contents of conceptual representations, or whether cognitive phenomenology is distinct or identical to conceptual or propositional contents (Pitt, 2020). Siegel (2006) proposes that in addition to sensory and some sort of cognitive phenomenology, various kinds of phenomenology might be associated with such things as imagination, emotions, bodily sensations, and background phenomenology.

## 5.3 Types of representational information contents in conscious experience

There are several different types or kinds of representational information contents that can be present in a conscious experience. These types of contents can be related to either phenomenal (felt) experience, or conceptual (thought) experience. Representational information contents can refer to the experienced perceivable properties of an object, but they can also regard non-perceivable, semantic contents, as well as what and how things are and what and how they might be. Representational contents can also concern individual's body movements and their own positioning and actions, along with those of imagined other agents, in the physical, spatiotemporal, and social world.

Russellian content (Russell, 1910, 1921), also known as singular content in contemporary discussion, represents a conservative view where the content of an experience is identified to the perceivable physical properties expressed by predicates that an object or a thing as referents of singular terms appears to have in that content (Bayne, 2011; Chalmers, 2006; Russell, 1910, 1921; Siegel, 2016) in "a direct cognitive relation" (Russell, 1910, p. 108). The perception of an object is what appears to the subject from the subject's particular perspective at the location and time of the event of perceiving (Russell, 1921). An example of Russellian content could be a statement such as 'tomato is red,' where tomato is a singular term of a particular object, and red is its predicate of a property. This view becomes problematic when the discussion extends to concern phenomenally experiencing things other than sensory information (Bayne, 2011), for example when discussing moral issues that can be highly emotionally-charged concepts. Chalmers (2006) aptly claims that Russellian content is not phenomenal content.

Fregean content (Frege, 1948) represents a more liberal view, where a perceptual experience has semantically representative content and where objects and properties have different modes of presentations (Bayne, 2011; Chalmers, 2006; Frege, 1948). In the Fregean view, the same object or thing can have multiple aspects of meaning that are linked to their associated cognitive role in a subject's reasoning (Chalmers, 2006; Siegel, 2016). Thus, when two individuals view the

same object and their experiences denote the same thing, there can be "a variety of differences in the conceptions associated with the same sense" (Frege, 1948, p. 212) because they view the object from different, subjective perspectives and from different modes of presentation of the object, together with selected, contextual facts of the environment where the thing is experienced (Chalmers, 2006; Frege, 1948; Siegel, 2016). This also means that two different individuals cannot have the exact same mental contents in consciousness (Frege, 1918/1956, 1948).

Possible worlds content is a simple theory that claims that a situation is represented by two different possible ways the world might be: a way, where a situation holds true, and another way, where it does not (Siegel, 2016). An individual can have mental states, such as desires and beliefs that there are certain things with certain properties, desires that are distinguished between possibilities of hoping for or fearing, and beliefs that hold possibilities for actuality and falsehood (Egan, 2006). There are some problems with this kind of theory. In cases of visual illusions and pictures of impossible scenes, where something in the perceived image seems to phenomenally exist and non-exist at the same time, leading to assumptions that possible-worlds content, alone, cannot explain the contents of experience (Siegel, 2016). Possible worlds might neither be adequate to describe distinctions related to the different ways of how an individual as oneself might have been in different possible worlds (Liao, 2012).

Proto-propositional content is non-conceptual representational content that has truth-value and that contains of one or several individuals of objects, properties and relations such as 'square', 'same shape as' or 'parallel to' and so on, as regions or locations in a positioned scenario (Peacocke, 1992). According to Peacocke (1992), proto-propositional content is important for the "memory, recognition, and the subject's construction of a cognitive map of his world" (Peacocke, 1992, p. 78), as this type of content decreases the subject's cognitive load while facilitating more effective estimations and direct ways of working for these mental functions. Proto-propositional content can also help to explain how the exact same shape property is experienced in different ways among different viewers. For example, one subject might see a construct of lines as a square, whereas another subject might see it in the shape of a diamond. These differences can depend on what kind of proto-propositional content each individual subjectively possesses (Peacocke, 1992; Siegel 2016).

The "gappy contents" view proposes that the contents of an experience fall under a certain content schema where there are one or multiple gaps or slots that are filled with the properties of a perceived object, or components that are indexically related to the subject (Siegel, 2016; Tye, 2009). When those slots are filled with properties that are attributed to the perceived object, such as redness, roundness, and sweetness, it creates a veridical belief that there appears to be something that is red, round, and sweet (Tye, 2009). There are also gaps for presenting the location of the object, such as "one meter away in front of me," that varies according to the subject and circumstances (Siegel, 2016).

Indexical content refers to the relation of a thing or an object against its spatial or temporal properties from the subject's first-person perspective in a contentful experience (Siegel, 2016). For example, to describe their experience, a subject can use indexical expressions such as "there was a red tomato in front of me two minutes ago," where there, in front of me, and two minutes ago display indexical content of an experience. As Siegel (2016) notes, in a visual experience, subjects are in certain perceptual relations between objects. This notion can be easily applied to all kinds of experiences. According to Chalmers (2010), phenomenal properties or qualities associated with a thing can also be indexically ostended by a subject in a specific context (for example, "I am dreaming of that red tomato now.")

Indexical content relates to scenario contents, originally proposed by Peacocke (1992). According to scenario contents, the environment is represented to a subject as modality-dependent range of points of origins and orientations of three labelled axes in space (back/front, left/right, and up/down) (Peacocke, 1992, p. 62), which are organized as interrelated to the location of things and the perceiver's bodily perspective (for example, the chest of the human body) (Peacocke, 1992, p. 62) and experienced as correct or incorrect (Bermúdez, 2009; Laurence & Margolis, 2012; Peacocke, 1992; Siegel, 2016). Peacocke (1992) suggests that scenario contents are the most basic or fundamental form of representational content that specifies "which ways of filling out the space around the perceiver are consistent with the representational content's being correct" (Peacocke, 1992, p. 61), where experience of different sense modalities can also overlap. Using the tomato example, in an experience of a ripe homegrown tomato being arm's-length away front of someone, the scenario content of perceptual experience would be experiencing the tomato in a specific location as a point in space, with a certain spatial direction and distance in relation to the individual's body, and filling that point in space with a specified representation of, say, a solid, smooth, round, red, faintly sweet smelling object (Laurence & Margolis, 2012). What is noteworthy about these scenario contents that it suggests that what a subject is perceptually able to discriminate does not depend on their conceptual capacities, supporting the existence of spatial type, non-conceptual content in the experience (Bermúdez, 2009; Peacocke, 1992).

Similar to the scenario content is the framework of centered worlds (Egan, 2006, 2007). According to the centered worlds view, things seem to be located in a relation to a designated subject and possible other fine-grained parameters such as time, and the locations are defined from the viewpoint of a subject as being the center of that subject's world and experience (Egan, 2006, 2007; Siegel, 2010, 2016). According to two different accounts, centers can be specified either based on space-time coordinates or by the name of an individual or inhabitant (Liao, 2014). Egan (2006, 2007) explains that centered worlds are observer-dependent representations for a subject who is an active agent, to map their own correct position at a geographical or non-geographical location in the world at a specific time, drawing distinctions of the possibilities and beliefs about how the self might be occupied in that situation. Centered worlds might possibly even extend

to collective level thoughts, or "thoughts that are attributable to collectives and cannot be straightforwardly reduced to collective members' thoughts" (Liao, 2014, p. 19). However, first-personal collective de se thoughts pose some issues which can, for example, challenge either the centered worlds view or the existence of collective thoughts altogether (Liao, 2014). Ninan (2012) suggests the possibility of multi-centered worlds, where there is more than just one center of imagination, or other propositional attitude alternatives of which possible worlds might exist and be true for the subject agent and other individuals. Instead of having just one center, there might be multiple centers of set or "tagged" individual-acquaintance relation pairs that exist in the same time and world as the subject (Ninan, 2012). This kind of view would fit into theories such as theory of mind (TOM) and empathy theory, where individuals can at least partly imagine the content of other agents' subjective minds from the others' point of views or center.

Construction-theoretic content is non-conceptual content that is a way objects and the world are being presented with locations in space, in experience, depending on the individual's abilities, skills, and knowledge about how to move in that environment (Cussins, 1990; Siegel, 2016). This kind of content does not have accuracy conditions, nor does it depend on which concepts the individual possesses, but it is essential, however, that the subject is enabled to form accurate mental states and conceptual content (Cussins, 1990; Siegel, 2016).

Siegel (2014) proposes yet another type of content called answerability content. This type of content is related to what Siegel (2014) calls experienced mandates, which are experienced affordances that motivate or force an individual to act in a certain way, based on what the environment affords (this content type is reminiscent of the construction-theoretic content but also depends on the subject's conceptual and semantic knowledge). In short, Siegel (2014) suggests that people are sensitive to some forms of normativity, such as power relations in social interactions, which cause different mandates to be experienced on an individual level. These mandates, or affordances, that cause a response from a feeling are attributed in experiences as correlated answerability content (Siegel, 2014).

Multiple contents view hold the idea that experiences have more than one kind of content, such as having both conceptual and non-conceptual contents, or having both object-involving contents and gappy contents, general or existential contents (Siegel, 2016). For example, Chalmers's (2006) two-stage model proposes that there are Russellian, Fregean, and Edenic contents in experience. Edenic content mirrors and regulates the sensory experience and its primitive and simple qualitative and phenomenal properties, representing the ideal of perfect veridicality instead of being a result of some mental or microphysical property, tendency, or causal event (Chalmers, 2006). Sensory experience is matched with Edenic content, which in turn determines the Fregean content of the experience. There are both presentational and representational contents in experience that reflect the experience's phenomenology in the former and intuitive conditions of satisfaction in the latter (Chalmers, 2006).

In a later version of this two-dimensional framework, Chalmers (2010) abandons the term "Edenic content," and instead, the Fregean content "is associated with a primary intension" of a spatiotemporally assigned individual to extensions and "the Russellian content of an expression is simply its extension," a type of content that in perceptual experience is "a structured Russellian proposition involving objects and properties." (Chalmers, 2010, p. 372). Fregean and Russellian contents can also form more complex structures and more complex expressions (Chalmers, 2010). As Cussins (1990) proposes, representational states or vehicles can have multiple and several kinds of contents, presenting the world as correct or incorrect, as well as making the world accessible to the subject and guiding their actions.

## 5.4 Mental contents in experience of graffiti

A phenomenal experience can be understood as a mental representation of something that has some sort of properties or mental attributes linked to it, describing what that something is phenomenally felt like. Concepts can be described as representations of learned constructions of meanings that stand for knowledge of different classes, types, or categories of entities. A concept can also be understood as a bundle of analogies with sensorial, emotional, or abstract similarity. In analogy-making, new encounters are matched and labeled with a prior category, such as "Wild Style Graffiti" in Article VI or a stereotype in Article V. Possessing concepts enables a subject to recognize, discriminate, and understand different and new instances of objects and properties in their contexts and to deploy those concepts in propositional attitudes, such as beliefs, intentions, wishes, or doubts.

While some mental concepts are innate, repertoires of larger and more numerous concepts and interrelated conceptual structures can be built in learning. Learning new concepts can also happen in communication between people. Concepts can be formed of particular things or about more abstract notions, such as beauty, which can transform into the subjective ideals of those concepts. Presumably, for example, an individual can form a synthetic concept of an ideal graffito and what it represents, where an actual graffiti can only be compared to some parts of that synthetic, ideal concept of graffito, as noted in Article IV. Learned concepts can also guide an individual's perception and thinking, and learning can explain the differences between experts' fine-grained experiences and the more coarse experiences of nonexperts.

Perceptual attributes of concepts represent the basic perceptual qualities of the world and sensations. Concepts can also have nonperceivable attributes, such as semantic information. Perceivable and nonperceivable attributes form representational content with different sets of associated beliefs that can generate different experiences. Different views argue whether an individual can experience only low-level properties, such as color, shape, and size, in their

perceptual experiences or whether humans can also experience high-level properties of something meaningful directly in their perceptual experiences. Conceptualism holds that the possession of concepts and how they are used determine an individual's thoughts and beliefs, whereas the nonconceptualist approach proposes that sensory perception does not require conceptualization. Conceptualism proposes that if an individual lacks a concept related to a certain object or thing, they might not be able to have any thoughts, emotions, motivations, or beliefs about that topic. According to other views, properties or perceptual experiences can exist without possessing the corresponding concepts. There can be such large representational richness of grain in perception that it is impossible to be captured or identified by demonstrative concepts.

There can be various kinds of phenomenal properties or conceptual and nonconceptual states in experience. Representational information contents refer to the experienced perceivable physical properties of an object (Russellian content), but they are also semantically representative contents (Fregean content). Possible world content claims that a situation is represented by two possible ways the world might be. According to the gappy content view, the contents of an experience fall under a certain content schema where there are one (or) multiple empty gaps that are filled with the perceived object's attributed properties. There are various nonconceptual contents about objects and subjects and how they are or are not located in space and in relation to their own or others' perspectives, bodies, or time, and where contents can depend on experiencers' abilities, skills, and knowledge about how to move in that environment. Some of the contents might even extend to the collective level or multicentered thoughts, which can be illustrated, for example, in the sentence "laypeople will not like this kind of art," as suggested in Articles V and VI, where the "laypeople" represents a collective that has first-person thoughts. Answerability content refers to experienced social affordances that motivate or force an individual to act in a certain way, and such content is present in the authors' experiences in Article II. The multiple contents view holds the idea that experiences have more than one type of content, such as having both conceptual and nonconceptual contents, or having both object-involving and gappy contents, or general or existential contents.

Presumably, some or all such contents are also present in the experience of graffiti art, as there are contents about perceivable and semantic properties of objects; contents that are related to physical and temporal aspects of the world and to movements, relations, and locations of bodies and things; and subject's own and other subjects' positions in physical, experiential, and social worlds, as suggested in Articles I–III, V, and VI, respectively. There are also contents related to emotions in Article IV. From the list of various contents, it can be assumed that there are more than one type of content, and that there are many more types of contents, maybe even an infinite number of types of contents than the ones listed above. However, contents can be categorized under certain themes depending on, for instance, what rules of categorization are used by a researcher.

# 6 EXPERTISE AND MENTAL CONTENTS

The theoretical foundations discussed in this thesis indicate that expertise is the body of knowledge as information contents that people have in their mental representations after they have learned and integrated new knowledge, such as concepts, in their mental knowledge structures (Ericsson, 2018). What becomes available to awareness and is expressed in speech and behavior during a conscious experience is the content of those representations. Therefore, it can be assumed that the contents that experts possess and the differences in contents between people with varying levels of expertise should become visible when comparing the differences in conscious experiences between those people (Ericsson, 2018). What is expressed during those experiences by people with different levels of expertise can also be used as a source to investigate mental contents, conscious processes, and consciousness itself. That is why explaining and understanding expertise is also important for explaining and understanding what the information contents in mental representations during conscious experiences actually are. The focus of this chapter is to further explain expertise, not only how it is defined, but how it is acquired and how it might affect thinking, feeling, behaving, and experiencing.

Expertise "refers to the characteristics, skills, and knowledge that distinguish experts from novices and less experienced people" (Ericsson, 2018, p. 3). Expertise can be understood as consisting "of acquired skills and knowledge in a specific domain" (Simonton, 2003, p. 221) and leading to a very high competence and specialized knowledge in the expert's respective domain (Ericsson, 2018; Mayer, 2003). Knowledge can be defined in Mayer's (2003) terms as "learned cognitive representations that support cognitive performance" (Mayer, 2003, p. 265). Piaget (1964/2003) describes learning as being generally provided "by situations […] with respect to some didactic point; or by an external situation." In opposition to spontaneously proceeding development, "learning is provoked," and "it is a limited process— limited to a single problem, or to a single structure" (Piaget, 1964/2003, p. s8).

The reasons why experts can attain high levels of achievement is due to effective encoding and the use of mental representations in their long-term memory (Ericsson, 2018; Ericsson & Pool, 2016). These representations are in hierarchically organized, interrelated chunks of information that are arranged as context-depended, meaningful configurations and patterns that the expert has acquired by training (Chase & Simon, 1973; Ericsson, 2018; Ericsson & Pool, 2016). These mental representations aid memory in recognition and remembering where problem solving happens as unconscious, perceptual processing, instead of experts having to rely on slow, conscious reasoning (Chase & Simon, 1973; Ericsson, 2018; Ericsson & Pool, 2016; Newell & Simon, 1972). The more training that an expert receives, the more they are able to acquire numerous and more highly complex chunks of structured information, thereby making it possible for an expert to process larger amounts of information faster, and which make experts, such as chess masters, able to perform even more effectively (Chase & Simon, 1973; Ericsson, 2018; Ericsson & Pool, 2016). However, this is not enough to explain all phenomena regarding expertise, such as experts' abilities to plan and evaluate as mechanisms that involve representative performances and memories that entail more complex relations (Ericsson, 2018; Ericsson & Pool, 2016).

When an individual practices something, this can happen in different levels. According to Ericsson (2005), naïve practice is something that an individual just does repeatedly, whereas purposeful practice has specific and realistic, challenging short-term and long-term improvement goals that they focus on reaching, and which they monitor and receive feedback from the practice. World-class expert performance is reached by deliberate practice, when an individual engages in "special practice activities that allow performers to improve specific aspects of their performance with problem solving and through repetitions with feedback" (Ericsson, 2005, p. 237), and where the expert acquires more numerous, more detailed, highly specialized, and domain-specific knowledge structures as mental representations in their memory, compared to non-experts (Ericsson, 2003b, 2018; Ericsson & Pool, 2016). These mental representations enable "efficient control and execution of performance" and mental "mechanisms that support planning, reasoning and evaluation" (Ericsson, 2005, p. 238) regarding the performance, such as mentally imagining changing patterns of a chess board (de Groot, 1946/2008; Ericsson, 2018; Ericsson & Pool, 2016). They also enable the expert to understand, organize, and integrate the information with other relevant, pre-existing information in the memory as a "part of an ongoing story" (Ericsson & Pool, 2016, p. 68). Without deliberate effort to maintain, improve, and refine existing skills, even high-level performance abilities can deteriorate as the information stored in long-term memory begins to fade (Ericsson, 2005, 2018; Ericsson & Pool, 2016).

De Groot (1946/2008) proposed that world-class chess masters are able to select better chess moves than less skilled players. According to de Groot (1946/2008), experts possess more learned knowledge of chess and mastery acquired by experience than novices, which they can recall intuitively from their

memories. Therefore, they can immediately perceive and abstract, or "see," the structure of the situation on a chess board, i.e.: its essential features, what is going on, and what should be done, in a very different and more efficient way than less skilled players (de Groot 1946/2008). De Groot's research can be considered the beginning of expertise research that also investigated human thought processes (Ericsson, 2005, 2018). Since then, expertise research has developed into new psychological "science of expertise" (Ericsson & Pool, 2016, p. 15) that studies the abilities experts possess and how they were acquired by these experts.

There are differing theories about how expertise and knowledge acquisition is acquired in a specific domain. Some theories emphasize the importance of continuous, deliberate practice and inner motivation as the sole determinates of how expert performance and the complex mechanisms that mediate superior expert performance is achieved, whereas other theories also include innate talent or ability, or cognitive raw material, as important components in achieving expertise, as well as the availability of a favorable environment and support from others (Ackerman & Beier, 2003; Ericsson, 2003a, 2003b, 2018; Simonton, 2003). Experts acquire a body of knowledge and better working memory capacity that can be employed in planning, inferring, and problem-solving situations by recalling prior solutions from long-term memory (Ackerman & Beier, 2003; Ericsson, 2003a, 2003b) and task domain-specific mechanisms that can increase the speeds of cognitive and motor processes, consistency, and control of motor actions and refined techniques (Ericsson, 2003a).

According to Collins and Evans (2007), a contributory expertise is also something that can be passed on to new people through teaching, in forms of socialization and apprenticeship. However, "it is possible to acquire an understanding of practice through deep immersion in the corresponding spoken discourse without actually engagin in the practice" (Collins & Evans, 2018, p. 26), what can be called "interactional expertise". For example, an art critic or an authenticator of an artwork as a technical connoisseur differs from the artist in a way that they are not producing the artworks, but instead evaluating the work against their existing knowledge and imaginations about how the reviewed artist's work would typically look (Collins & Evans, 2007). In other words, an art critic or an authenticator can sensorially recognize the typical perceivable properties that are visibly unique and distinguishable in all works created by that specific artist. This can happen even though an art critic or connoisseur is not producing the art as a "contributory expert" with the "ability to perform a skilled practice" (Collins & Evans, 2007, p. 24) within the domain of their expertise. Rather than learning by creating art themselves, art critics, connoisseurs, and authenticators are able to learn informal and tacit knowledge expressed in an artist's actions through a process of acquiring skills that become unconsciously applicable and embodied, instead of learning just explicit, formal, propositional facts and rules (Collins & Evans, 2007). This learning of both mimeomorphic and polymorphic actions, where the former refers to fixed behaviors that can be learned by mimicking but that do not require social understanding, and where the latter refers to polymorphic actions' dependence on understanding of what

kind of behavior is suited in different social situations, can happen from a second-hand experience instead of oneself engaging in action (Collins & Evans, 2007). Mimeomorphic and polymorphic actions can be learned, for example, from watching the goal-oriented actions of an artist live or from a video, reading meticulously written descriptions of production and practices, or directly interviewing the artist about their physical activities, emotions and motivations while doing art (Collins & Evans, 2007).

By immersing oneself into the physical, social, and linguistic community of a special domain, along with its form and way of life with other experts of that particular domain, the connoisseur is enculturated within that domain's culture and its specialist language (which can be not only verbal but also in pictorial format). This leads to gradually acquiring interactional expertise, even without being physically engaged with that domain's world (Collins & Evans, 2007, 2018). A connoisseur, such as an art critic or an art researcher, does need to have the ability to create artworks themselves, but needs to be immersed in the art world's social and linguistic discourses in order to internalize and master the specialist language of art domain, and by doing so, possessing information, understanding, and an ability to have conversations regarding semantic, technical, and procedural aspects of the artists, artworks, and the larger sociocultural context (Collins & Evans, 2007).

## 6.1 Expertise and experiencing

Experts in a specialized field, such as radiology, art history, or art criticism, who must learn to infer reliable conclusions from noisy, ambiguous and complex visual signals, can more effectively detect and analyze different levels and types of configural information in their specialized domain than novices (Collins & Evans, 2007; Hayward & Tarr 2005; Kuuva, 2007; O'Connor, 2004; Solso, 2001; Toribio, 2018). This might be partly due to the experts' acquisition of memories and knowledge, such as highly nuanced concepts and mental schemas, and the ability to associate the accumulated information with the recognized visual stimuli by recognition and judgments of knowing (Ackerman & Beier, 2003; Saariluoma, 1990, 1992, 2001; Saariluoma & Hohlfeld, 1994; Wixted, 2007).

When an individual has gained new information by learning about the object, like a work of art, and every other thing that is related to the thing that is being perceived, they acquire new concepts. At the same time, existing concepts and the conceptual knowledge structure becomes more complex and fine-grained (Halpern, 2013; Kuuva, 2007; Saariluoma, 1990, 1992, 2001; Saariluoma & Hohlfeld, 1994). This allows for new categorizations, associations, analogies, perceptions, judgments, and beliefs about the work of art, thereby changing the content of the mental representation and the phenomenal character or quality of the experience (Kuuva, 2007; Saariluoma, 1990, 1992; Saariluoma & Hohlfeld, 1994).

Existing research regarding whether visual artists possess some superior perceptual abilities compared to non-artists suggests that artists perform better than non-artists in some perceptual and drawing tasks and that artists perceive the world in different ways than non-artists (Kozbelt & Ostrofsky, 2018). However, considerable evidence suggests that these differences are due to expert's integration of top-down and bottom-up processing of the explicit domain-specific knowledge about art and drawing, which also enables the expert to analyze art objects and shift and focus attention when perceiving art, and in general, use better mental strategies than laypeople to understand a work of art (Kozbelt & Ostrofsky, 2018). The ability of laypeople and experts to evaluate and identify expertise in other people is difficult and can depend on the domain; in some domains, experts can perform as well or poorly as novices (Ericsson, 2018). Also, experts can disagree with other experts, or their actions can be based on learned routines instead of execution of "superior performance" (Ericsson, 2018, p. 4). When a person evaluates the creative performance of another expert, the judgment will reflect the level of expertise of the evaluating person (Ericsson, 1999).

Expertise can affect to how people value and emotionally experience art (Heidegger, 1935/36/1976; Fayn & Silvia, 2015; Kuuva, 2007; Leder et al., 2004; Pihko et al., 2011). However, expertise can also cause biased thinking, such as thinking in a certain, typical way and learning to expect and perceive some typical characteristics in objects, people, and situations (Kahneman, 2011; Kahneman & Klein, 2009; Witt et al., 2015). When a subject becomes more sensitive to detecting signals, whether they are related to perceptual, memory, social, or other types of sensitivity, the subject also often becomes biased towards perceiving, remembering, and giving certain types of responses or reactions (Witt et al., 2015). Experts make judgments that are based on their acquired skills, but they are affected also by things such as unconsciously recognized situational cues and learned heuristics, both of which are related to memory, context, and environmental regularities along with their predictability, sheer luck, and (over)confidence, plus other psychological biases (Kahneman, 2011; Kahneman & Klein, 2009).

## 6.2 Expertise and culture as learned information

Expertise is something that emerges as a result of evolutive adaptation and from a combination of things such as flexible "cognitive abilities, increasing social competition" and "an inherent motivation to signal desirable traits in areas that are culturally valued and tied to social prestige" (Winegard et al., 2018, p. 40). In an evolutive sense, expert performance can be understood as a signal that "communicates the possession of desirable traits, skills, or, even, genes" (Winegard et al., 2018, p. 44) and that can attract status or partners in a social or romantic sense. However, most individuals who participate in various cultural

practices or routines are neither experts nor nonexperts but act "within the normal limits of variation for their cultural system," at an automatic level of performance that is "good enough" (Stigler & Miller, 2018, p. 435-436).

Thus, possessing expertise holds important sociocultural value. But what is culture? Culture can be understood as a lens through which people think, act, and interpret their world (Oyserman, 2017; Richerson & Boyd, 2005). Culture is learned information that contains mentally preserved concepts such as thought, knowledge, believes, values, skills, and attitudes (Richerson & Boyd, 2005). Culture works according to a set of psychological mechanisms that guide and affect cultural activities and individuals' behaviors, experiences, inferences, and understandings of cross-cultural meanings, often operating at unconscious levels (Stigler & Miller, 2018; Tooby & Cosmides, 2005). Cultural information is transferred by forms of social transformation, such as learning and imitating (Oyserman, 2017; Richerson & Boyd, 2005; Whiten, 2017), thus creating something as a "social mind" (Whiten, 2017, p. 148). According to Stigler and Miller (2018), some cultural activities and routines are learned implicitly while observing others and imitating their practices in later situations. As Stigler and Miller noted, "Cultural routines evolve slowly over time as cultures adapt to changing environment" (Stigler & Miller, 2018, p. 435).

Culture can be seen to include three things: a collection of everyday life practices, a temporally achievable core theme, and an ability to understand all these themes when they are activated (Oyserman, 2017). Culture also shapes how individuals construct their own life stories with pasts, presents, and futures, as people position themselves and structure their performative actions and experiences in reflection with the surrounding, socioculturally favored master narratives (Hiles & Cermák 2008; McAdams, 2017). Differences between cultural groups are expressed in language, gestures, social manners, moral norms and values, and art, among other examples (Hofstede et al., 2010; Richerson & Boyd, 2005).

A conscious experience that emerges in the human mind is a "plastic phenomenon," which is based on the development of an individual's skills, sensorimotor practice, and cultural learning, reflecting the dynamic and social interactions of different cultures, contexts, and situations (Allen & Williams, 2011). Humans all over the world share similar physiological bodies and basic biological, neural, and phylogenetic structures due to the evolutionary trajectories of human species, which can cause very similar experiences between individuals (Bronfenbrenner, 1977, 1995; Leung et al., 2011). Humans also maintain joint belief systems, customs, attitudes, and schemas of the world with their families, peers, and other individuals whom they grow and interact with in social proximities and special sociocultural networks (Bronfenbrenner, 1977, 1995). However, the everyday environments in which humans interact can be very different, which is seen in various ways in how embodied human minds are imbued in different languages and cultures (Leung et al., 2011).

Human individuals are situated in certain socio-cultural contexts, where individuals' actual and imagined bodies and their characteristics "can be

culturally socialized to support us to make sense of the world, to smoothly navigate everyday transactions, and to optimize our adaptive survival in the culture" (Leung et al., 2011, p. 605). In a view that Leung et al. (2011) called embodied cultural cognition, a physical body that interacts with the world is not only intertwined with a cognizing mind but is also connected with representations of socio-culturally relevant meanings, norms, affordances, expectations, and possible ways for the body to appear, move, and act in different contexts. According to Leung et al. (2011), this process of cultural embodiment is dynamic and flexible, where different culturally embodied body states and their cultural relevance depend on what is meaningful in that particular situation and on the variations in the individuals' characteristics.

## 6.3 Graffiti expertise and experience of graffiti

Expertise can be understood as very high competence and specialized knowledge and skills in a specific domain that is acquired by deliberate practice. By learning, experts acquire more numerous, more detailed, highly specialized, and domain-specific chunks of information and knowledge structures in their memory. These mental representations enable an efficient execution of performance and support performance planning, reasoning, and evaluation, even from ambiguous and complex signals. They also enable the expert to better understand, organize, and integrate new information with relevant, pre-existing information in the memory than nonexperts. In domains such as art, expertise can also be acquired from second-hand experience. For example, an art critic's interactional expertise can be gained as the critic immerses into the physical, sociocultural, and linguistic community of a special domain.

Presumably, when an individual learns about graffiti, they acquire new conceptual and nonconceptual information contents about graffiti that can be, for instance, about cultural concepts such as aesthetic styles or historical facts, events, or locations; about bodily practices and techniques that are required to produce graffiti; and about sociocultural, emotionally charged values and norms (this is implied in all articles but are especially discussed in Articles I, III, V and VI). An individual's existing concepts and the conceptual knowledge structure become more complex and fine-grained, which facilitates new perceptions, judgments, categorizations, analogies, and beliefs about graffiti. It can be assumed that learning changes the contents of an individual's mental representation and the phenomenal character of graffiti experience. For instance, graffiti expertise can affect how an individual experiences individual values or emotionally experiences graffiti, as discussed in Article IV. However, experts within the same domain might not always agree about things; experts can base their actions on learned routines; evaluating expertise in other people can depend on the domain; and in some cases, it is more about reflecting the evaluator's own level of

expertise. Expert thinking can also be biased, and it is also affected by, for instance, learned heuristics and situational cues.

Cultural information, such as its sociocultural knowledge, norms, and practices, can be shared and learned in stories, books, magazines, zines, websites, photos, and films about graffiti (Young, 2014), as noted in Article I. Presumably, imitating these shared cultural practices can affect individuals' knowledge and beliefs, thinking, values, and attitudes about graffiti. Culture is also embodied, and sociocultural meanings are imbued in how individuals perceive and enact their own and others' bodies and behaviors. There are several examples of cultural embodiment within the context of graffiti (e.g., Bowen, 2013; Dovey et al., 2012; Halsey & Young, 2006; Hannerz, 2017; Schacter, 2008), which are also discussed in Articles I–II and V (see also, Section 4.4).

# 7 METHODOLOGY

Much scientific research starts with an idea, one that is often vague and difficult to define or verbalize. New research ideas can be born out of previous research, unexplained phenomena, contradictory findings in another research, or just a researcher's feeling or thought that something is worthy of further investigation. Ideas can be put into the form of a hypothesis, presenting postulates that can even be supported, or research questions in the form of what, why, or how, for example (Saariluoma, 1997).

After setting the research questions or hypotheses, a major issue in any research is to select the appropriate methods and methodology so that the research can generate novel, relevant, and useful knowledge and thus contribute to the scientific corpus. The approach to the research and the selected methods must fit the research questions at hand and the resulting data also needs to be interpreted in a correct and reliable way. Methodology, which explains the selection of different procedures used to acquire knowledge, along with the methods and tools used to acquire information and knowledge, is part of a larger research paradigm. Methodology also includes considerations and decisions about the ontological and epistemological nature of reality, where ontological questions are about the mental and physical nature of reality, and epistemological questions concern the characteristics, competence, boundaries, and possibilities of knowledge (Kakkuri-Knuuttila & Heinlahti, 2006).

The present research applies paradigms that fall under Human-Technology Interaction (HTI) design, mainly user psychology and user experience (UX) research (Saariluoma et al., 2016). HTI design differs from traditional engineering practices, as HTI design and research processes use intuitive and creative ideation and visioning (Saariluoma, 2020). Conceptual innovations and ideas from HTI approach can be further empirically tested (Saariluoma et al., 2016). Paradigms determine, but not limit, how the research is conducted by specifying the topic and concepts of research and assumptions about the research topic and the world. They also determine research questions and their structures, what types of explanations and answers are legitimate and acceptable, what methods

are suitable to use, how to organize the research socially, and how to apply research findings in practical life (Saariluoma et al., 2016). UX and user psychology paradigms within HTI framework use psychological methodologies that include methods such as verbal protocols and questionnaires, which are generally categorized under methods of pragmatism. The UX research paradigm aims to design pleasurable and usable interactions where the focus is on subjective and situated users and their emotionally positive and enjoyable experiences during their use of a technology in different contexts and with products, services and systems, also in the case of aesthetic experiences (Saariluoma et al., 2016). Psychological methodologies aim to analyze and explain the human mind and behavior in a coherent manner using the framework of psychological thinking, concepts, theories, and methods. These methodologies aim to conceptualize and answer questions regarding why people think, feel, and behave the way they do when interacting with and solving problems using technology (Saariluoma, 2004, 2020; Saariluoma et al., 2016).

As Breakwell and Rose (2000) explained, often in psychological theories, different phenomena are explained using both mechanistic and functional types of explanations. Mechanistic explanation explains a phenomenon and its causes usually as "when something occurs, then something else follows," answering the "how" questions. The functional explanation explains a phenomenon that is purposive or teleological, its reasons, and consequences, thus answering questions about "why" (Breakwell & Rose, 2000). "Theory building is a messy, iterative process" (Breakwell & Rose, 2000, p. 9), where both deduction and induction are used to explain particular phenomena based on the general theory in the former and to develop theoretical generalizations from particular examples of specific instances in the latter. The researcher must also familiarize oneself with "available knowledge and theory, carrying out a thorough literature search that includes up to date information on the topic of investigation" (Elliott & Timulak, 2005, p. 148).

Theory building requires deducing predictions from theoretical generalizations and testing those predictions (Breakwell & Rose, 2000). How empirical findings, including qualitative and quantitative results, are interpreted depends on the research's background theory and conceptual structure, measuring instruments that are developed based on that theory and its theoretical assumptions, and on the researcher's influence and preliminary ideas of possible findings (Breakwell & Rose, 2000; Elliott & Timulak, 2005). Thus, it is not possible to make totally unbiased science or stay as some sort of unprejudiced, "neutral observer" in any form of psychological research (Breakwell & Rose, 2000; Elliott & Timulak, 2005). Because different phenomena, their underlying systems, and their interactions with individual, social, temporal, and other factors are generally so complex, it is also impossible to have some "absolute truth about how the world is" (Breakwell & Rose, 2000, p. 16). However, a researcher can make observations about phenomena using multiple scientific methods, follow expectations that are based on informed scientific knowledge, and construct

theoretically sound explanations of how, why, and on what causes different phenomena arise (Breakwell & Rose, 2000; Elliott & Timulak, 2005).

To research the content and processes of a conscious mind that thinks, feels, anticipates, and acts, the mind's conscious experiences can be studied. To cite Kant (1781/2009), "If I wish to investigate the properties of a thinking being, I must interrogate experience" (p. 725). The mental contents of an experience can be expressed in spoken phenomenological reflection (Chalmers, 2006, 2010; O'Callaghan, 2012) and also when investigating mental contents that underlay an art experience (Kuuva, 2007; Saariluoma, 2012). Humans are social creatures and social living requires that people communicate through cues of gestures, non-verbal expressions, and tones of voice, as well as in verbal ways using language (Uzefovsky & Knafo-Noam, 2017). Humans use their ability to follow a rule-based, semantic system of language to represent and communicate their thoughts in a verbal format (Astington & Baird, 2005; Beach et al., 2016), although language is just one format of thoughts' deep meaning utterances, which can be expressed on the surface level of language (Beach et al., 2016; Saariluoma, 2001). A person can present at least some of their mental content in verbal introspection (Scherer, 2009; Siegel, 2010) similarly to how a person can be aware of at least of some of the content that affects their behavior (Dennet, 2002). Particular phenomenal components of mental dimensions of cognition, conation, and emotion (Hilgard, 1980) can be experienced by a subject as experiential chunks, like experiencing a brief moment of a certain feeling or qualia (Scherer, 2009). For example, a subject can consciously experience a strong emotion of excitement toward an object or an abstract idea and then express this dimension in a verbal statement, ie: "I am very excited about this." A subject can have or imagine a strong need to act in a certain way which they can recognize during their experience and which they can then report: "I would very much like to do that."

Using introspection as a research method has many challenges. People might pay attention to only some things and even smaller amount of this information reaches their conscious experiences (Lycan, 2012; Revonsuo, 2010). Humans can verbally express only some of the information that reaches their consciousness (Saariluoma & Jokinen, 2014). In turn, when they focus their attention on a certain stimulus, "the representation of that stimulus is amplified and made widely available to the cognitive system for further processing" (Rossano, 2003, p. 208). Verbal outputs about conscious experience are infused with an individual's subjective and often unconscious beliefs, learned response strategies, and claims of the veridicality of that experience (Chalmers, 1996; O'Callaghan, 2012). Verbal reports also depend on the set task and are primed to focus on particular type of information (Ericsson & Simon, 1993). Phenomenal qualities of an experience cannot be described using some uniform, universal language (Chalmers, 1996). Trying to describe information content of a visual image can be even more challenging, as an image "vividly ties together interconnected information that can be difficult to represent verbally" (Thagard, 2012, p. 136). The same applies to emotions, as they can be vague, global, mixed, or without any clear verbal labels (Frijda, 2008).

Emotions are not only internal or subjective experiences but expressing and understanding others' emotions is also important for communication (App et al., 2011; Baumeister, 2007; Solso, 2003). However, emotions can be expressed and understood not only by language but also in different nonverbal channels, such as facial expressions, body movements, or certain types of touch (App et al., 2011; Frijda, 2008). In order to be able to verbally express something such as art evoked emotions, an individual must possess a conceptually adequate vocabulary (Tinio & Gartus, 2018), and some mental emotional contents that are in pictorial, visual format might even be impossible to express in words (Barrett 2006; Frijda, 2008; Zeki, 2009). An individual can also regulate their external emotional expressions and behave in certain ways where they share only some of their emotional experiences, either consciously or unconsciously, to give the individual some strategic and tactical benefits in life (App et al., 2011; Baumeister, 2007; Ekman, 1999; Pinker, 2011; Tooby & Cosmides, 2008). Aforementioned phenomena and possible other factors pose some challenges for using self-reports as data to study emotional experiences. However, self-reports do provide some information about emotions, at least regarding arousal states and emotional valence (Barrett, 2006).

Compared to less skilled laypeople, expert performers have more refined and relevant information contents in their mental representations regarding the expert domain which enables more flexible reasoning for developing new ideas, determining how those ideas can be turned into products, and deciding what actions must be taken, even in new situations (Ericsson, 1999). The kind of contents people have in their mental representations can be studied by comparisons in the mental contents between laypeople and experts. Expertise can be understood as having domain specific information as knowledge and skills that have been acquired through learning (Ericsson, 2018). It can be hypothesized that from the mental contents view, expert knowledge and skills are an accumulation of more complex knowledge and retrieval structures organized in meaningful patterns in their memory, which should be present in the experts' mental representations during conscious experiences about their specialist domains, even when the information was unconsciously retrieved (Rossano, 2003).

There are some examples how art experiences and expertise have be studied by using verbal self-reports, sometimes together with other techniques. For instance, conscious experiences of art and the differences in seeing and knowing art between laypeople and experts have been researched by studying the eye movements of research subjects during an inspection of artworks and having an additional thinking-aloud task (Bauer & Schwan, 2018). Jankowski et al. (2020) studied the effects of temperament traits, expertise, and personal meanings in aesthetic appreciation in creative problem-solving of novices and experts within two different domains of artistic drawing and computer programming using verbal protocols. Kuuva (2007) used a content-based approach to study experiencing visual art, where interpretating artworks were understood as a type of problem-solving "through the concepts of memory, perception, attention,

apperception, restructuring, reflection, and construction" (Kuuva, 2007, p. 161). To investigate art experiencing, Kuuva (2007) used the standard protocol analysis in experiments in which participants with different levels of expertise in art history were given tasks to describe the contents of pictures of different paintings.

## 7.1 Heterophenomenology and protocol-analysis

To overcome many challenges related to studying conscious experiences, a researcher must make assumptions about the theoretical framework of consciousness and its functions along with the aspects that can become conscious and available in the subjects' awareness, and of those that can remain unconscious to the subject, but that might nevertheless affect their experiences (Chalmers, 2010). One way to describe and research something as a subjective experience and its meaning for the experiencing individual is by phenomenology, a science and philosophical examination of phenomena that happen in experience and action (Hartson & Pyla, 2012; Moustakas, 1994).

The mind has phenomenal conscious experiences and the phenomenological view assumes that people can become aware of themselves and report the properties of their conscious mental states, their knowledge, feelings, and perceptions from the subjective, first-person dimension (Brentano, 1887/1995; Chalmers, 1996; Dennett, 2017; Husserl, 1926/1995). In Heidegger's (1926/1992) view, phenomenology means showing what subjects have in their minds, as that content itself is, "to let that which shows itself be seen from itself in the very way in which it shows itself from itself" (Heidegger, 1926/1992, p. 34).

### 7.1.1 Heterophenomenology and some alternative phenomenological approaches

When the unique, conscious experiences of an individual are investigated from the third-person perspective, the experiencing individual reports their subjective, conscious mental contents to a researcher who inspects the subject's point of view and their beliefs about their conscious experiences from the position of the other (Dennett, 2003; Dennett & Konsbourne, 1992). As Chalmers (2010) notes, the science of consciousness aims to systematically join data about a person's subjective experiences in their conscious systems, such as perceptual, bodily, and emotional experiences, or mental imagery and thoughts, with data about that subject's brain processes and behavior. An approach to scientifically study consciousness in this way is called "heterophenomenology" (Dennett, 2003, 2017), or "the phenomenology of the other person's experience" (Dennett, 2017, p. 351). Another person such as a researcher is able to study the features and contents of the other's experience and make inferences that are more accurate and reliable from the third-person perspective, that would be invisible and biased for the experiencer in their own "autophenomenology" (Dennett, 2017, p. 351). As van

de Laar asserts, heterophenomenology "instructs scientists to interpret introspective reports as expressions of beliefs about mental states and to suspend judgement concerning the truth values of those beliefs." (van de Laar, 2008, p. 366). This means that heterophenomenologists try to stay neutral about judging whether what the participant believes they are experiencing is true or not, and instead take participants' protocols as uniterpreted, different sorts of annotations (van de Laar, 2008).

Neuroscientific research on neuronal activity might tell what brain regions are activated during a conscious experience, but the using of only biological concepts renders researchers unable to tell what those contents are actually about (Saariluoma, 1999, 2001). People cannot tell about their brain processes (Dennett, 2000), nor can they tell about their unconscious mental contents (Saariluoma & Jokinen, 2014; Saariluoma et al., 2016). However, by using a heterophenomological approach and methods such as protocol analysis and questionnaires, a researcher can also study unconscious aspects of experiences by analyzing different representational systems, such as those that concern emotions, (Saariluoma & Jokinen, 2014), by studying verbal reports and collecting evidence of what experiences are present and which are absent (Chalmers, 2010).

An alternative approach to studying consciousness is called neurophenomenology, where both biobehavioral and phenomenological data together are taken "as a datum that is relevant for understanding the mind" (van de Laar, 2008, p. 369). However, as argued by van de Laar (2008), even though heterophenomenology and neurophenomenology are understood as different methodologies, they use largely the same methods but disagree about the interpretation of the raw data. There is a disagreement about whether to take the data from introspective, often verbal reports as reports of the subject's conscious mental states (supported by neurophenomenologists), as reports of high-level mental states (supported by many cognitive scientists), or as "guide to a participant's beliefs about his or her mind and impute to these a fictional status" (van de Laar, 2008, p. 373).

Critical phenomenology, another approach to studying consciousness, adopts a framework "in which first-and third-person accounts of the mind are treated as being complementary and mutually irreducible" (Velmans, 2007, p. 227). This stance critiques Dennett's heterophenomenology for several shortcomings. For instance, Velmans (2007) argued that when Dennett denies the existence of qualia and the qualitative properties of conscious experiences, Dennett seems to reject the existence of consciousness as "subjective, phenomenal consciousness" (Velmans, 2007, p. 226). Velmans (2007) claimed that heterophenology assumes that "subjects are necessarily deluded and scientifically naive about their experiences" (Velmans, 2007, p. 226), doubts that subjects could have experiences that are something for them, and disagrees that these experiences have describable qualities. This approach excludes essential elements of the nature of consciousness when first-person experiences are attempted to be described from a third-person perspective (Velmans, 2007). In

addition, Velmans (2007) argued that heterophenomenology is not reflexive, but the researcher's third-person reports are based "on their own first-person experiences" (Velmans, 2007, p. 227). In critical phenomenology, in contrast, both first-and third-person perspectives and reports, even as incomplete and revisable, are required to create a comprehensive description of the mind (Velmans, 2007). Critical phenomenology also argues that subjective experiences exist and are real, and not only beliefs. How reports are investigated and interpreted depends on the used theory and developing refined methods, and their first- and third-person accounts can inform each other and be used conjointly (Velmans, 2007).

Dennett (2007) replied to Velmans' (2007) criticism. Dennett (2007) claimed that, overall, Velmans (2007) misinterpreted heterophenomenology. Dennett (2007) argued that, to be able to interpret whether one believes what one is saying or not would require some negotiation or discovery of what is true. Instead, a heterophenomenologist is neutral about whether these beliefs were interpreted as true or false (Dennett, 2007). According to Dennett (2007), truths can exist in two ways in subjective and real worlds, as truths that concern the physical world and its phenomena, and truths about the beliefs, assumptions, conceptions, etc., which can be related to, for example, cultural myths or historical accounts. Neither does heterophenomenology claim that subjects would be deluded to or naïve about their experiences (Dennett, 2007). Instead, heterophenomenology is "a cautious, controlled way of taking subjects seriously, as seriously as they could possibly be taken without granting them something akin to papal infallibility" (Dennett, 2007, p. 252). Heterophenomenology is also reflexive, as "one can certainly adopt the heterophenomenological method towards oneself, treating oneself as an experimental subject, indirectly" (Dennett, 2007, p. 263). As Dennett (2007) concluded, Velmans's (2007) descriptions of critical phenomenology are also compliant with heterophenomenology, so critical phenomenology is, in fact, the same approach as heterophenomenology.

While heterophenomenology can be understood as a third-person phenomenology of other individuals' subjective experiences (Dennett, 2017), there are other alternatives to a phenomenological inquiry. For instance, interpretative phenomenological analysis (IPA) is a psychological, experiential, and qualitative research approach to research how individuals make sense of different positive or negative transitional events in their lives or how they make important decisions regarding their life choices (Smith et al., 2009). IPA is interested in individuals' reflections, thinking, and feelings of significant occurrences during their lives, of important experiences of events that individuals might not have been aware of before a certain moment that turns some everyday experience into "an experience" (Smith et al., 2009, p. 2). Typically, in IPA, the experience to be investigated is composed of smaller parts of life events, which together have some significant, common meaning in the experiencer's life, where events can be sudden or taking a long period and where they can be caused by the actions of the individual or unexpectedly by chance (Smith et al., 2009). The participants in IPA research usually form a small, homogenous sample so that the researcher can investigate similarities and

differences between those individuals and their sense-making of special experiences (Smith et al., 2009).

According to IPA, during an interview with a researcher, a participating individual engages in partly unconscious, partly conscious, phenomenological reflections about significant experiences, which are recorded, further phenomenologically reflected, and made sense of by the researcher (Smith et al., 2009). A researcher interprets and tries to make sense of a particular participant's sense-making endeavors in the form of double hermeneutics, where a researcher tries to empathically make sense of participant's experience from the participant's first-person perspective. At the same time, the researcher tries to analyze and understand them from another, second-person angle, from where they can question and interpret what the participant is saying (Smith et al., 2009).

IPA is concerned with examining the lived experience in a way where an experience is "expressed in its own terms" instead of predefined categories (Smith et al., 2009, p. 32). In interpretative phenomenological analysis, an individual's sense-making and meaning-making in their experiences are understood as essential human cognitive activities that are "situated and related" (Smith et al., 2009, p. 194), as they happen in certain cultural frameworks, utilize certain linguistic narratives and other resources, and take place within certain interaction and physical contexts. In the IPA approach, human lived experience "can be understood via an examination of the meanings which people impress upon it," and that can "illuminate the embodied, cognitive-affective and existential domains of psychology" (Smith et al., 2009, p. 34), including core constructs that are concerned about, for instance, embodied, emotional, cultural, and narrative experiences. Thus, there are many similarities and differences between heterophenomenology and interpretative phenomenological analysis. For instance, IPA and heterophenomenology are both interested in the subjective experience of the participant, but how a subject and a researcher engage and contribute to the interpretation process is different. IPA focuses on significant, particular experiences, whereas heterophenomenology does not seem to take a stance on whether explained experiences must be that important for the subject.

In qualitative psychological research, there exist various well-established and continuously developing approaches and traditions with diverse, sometimes overlapping research goals and methods. There are also emerging frameworks, such as "art based and performative research approaches" (Levitt et al., 2017, p. 7). For more than a hundred years, the phenomenological approach has developed "qualitative methods for the study of lived experience that include descriptive, interpretive, and narrative variants in psychology" (Levitt et al., 2017, p. 7). The post-positivist approach is "an objective approach to analysis in order to offer explanations or make predictions, while working to minimize human error and biases" (Levitt et al., 2017, p. 6), while in the constructivist-interpretive approach, "researchers seek to use dialogical exchanges with participants in order to uncover meanings" (Levitt et al., 2017, p. 6) in transparent interpretive processes. The pragmatic approach "is focused on solving problems that may be defined by multiple stakeholders in order to yield consequences that serve

human interests in complex institutions" (Levitt et al., 2017, p. 7). In the critical-ideological approach, "the purpose of the research may be to unmask and disrupt privilege, power, and oppression for the sake of liberation, transformation, and social change" (Levitt et al., 2017, p. 7) through the lens of different positions.

Where does heterophenomenology fall into this categorization? As Dennett (2007) argued, heterophenomenology can be understood as a type of positivism, but "it is an as yet untarnished, unrefuted kind of positivism, a kind that is alive and well and deservedly respected wherever science is taken seriously" (Dennett, 2007, p. 252). It combines two theoretical views—realism in "the view that beliefs are objective things in the head which could be discovered and whose identities could be confirmed, in principle, by physiological psychology" with interpretationism, which assumes that "a belief is a highly relativistic undertaking, more like asserting that someone is immoral, or has style, or talent" (Dennett, 1988, p. 496). This means that when a phenomenological first-person report is considered as useful, objective data, it must be interpreted by the researcher by adopting something that Dennett called the intentional stance (Dennett, 1988, 2017). Intentional stance means a strategy to try to understand, explain, and predict current and future phenomena, primarily of things, systems, or creatures that "use information to accomplish their functions" (Dennett, 2017, p. 37), from a philosophical account (Dennett, 1988). Adopting the intentional stance is understanding the creature as a rational agent within a context and with a purpose and attributing intentional states, such as beliefs, desires, goals, and rationality, to the creature and its predicted actions and behavior (Dennett, 1988, 2017). However, adopting an intentional stance does not mean taking a relativistic, subjective viewpoint, but interpretation can follow articulated rules and agreed standards and point out deviations and presumptions, which can be "treated as a defeasible, adjustable, defensible and evolutionarily explicable" (Dennett, 2007, p. 251) assumptions.

Often, qualitative research holds a base assumption that "reality is not objective and given," but it is "socially constructed either by the participants' accounts of their experiences, or through social interaction" (Lyons, 2000, p. 271). Researchers and their theoretical and methodological understandings, concepts, approaches, and reflections become part of the knowledge production process and data interpretations. The researcher's core assumptions about different possibilities for knowledge define the research's epistemological position (Lyons, 2000). In the empiricist epistemological position, "the main methodological principle is that of a discovery of valid representations by using inductive reasoning, and it evaluates qualitative research by using criteria analogous to reliability and validity" (Lyons, 2000, p. 270). Typically, this position includes methods such as traditional content analysis and the data display model (Lyons, 2000). The empiricist position is different from other epistemological positions, such as contextualism, which is about "construction of intersubjective meaning" from "participants' own meanings in concrete contexts" (Lyons, 2000, p. 271) and which includes methods such as grounded theory. It is also different from constructivism, which uses an interpretative analysis of a language's functions in

constructing representations of the world and includes methods such as discourse analysis and narrative analysis (Lyons, 2000). While the heterophenomenological approach can be understood as having an empiricist epistemological position, it also has some intersubjectively constructive aspects that resemble contextualism, as well as interpretative aspects from constructivism.

Heterophenomenological approach can be used to investigate individual's verbal reports of their first-person experiences. Even though language is not the same as thought, and there are many other formats of mental contents that what can be put into verbal form, one effective way for humans to express their conscious mental contents is via language and verbal protocols. After all, one could argue that individuals, themselves, are the ones who can best explain the phenomenal contents in their experiences, how they think, feel, and experience something. Even though subjects cannot report the mental processes that underlie their thinking, they do have access to their consciousness to report the information contents of their own consciously-attended mental states.

### 7.1.2 Protocol analysis and verbal reporting

In protocol analysis, people as research subjects are asked to think aloud during the experiment about what they are consciously experiencing (Ericsson & Simon, 1993; Saariluoma & Jokinen, 2014). In this way, it is similar to phenomenological introspection (Ericsson & Simon, 1993). However, thinking-aloud technique that can be used in protocol analysis is about expression of thoughts directly, as they emerge in consciousness (Ericsson & Simon, 1993; Saariluoma & Jokinen, 2014). This also makes self-reporting in protocol analysis a reliable method for providing trustworthy data for the researcher (Ericsson & Simon, 1993). The information provided by subjects in their protocols can give the researcher an understanding of subjects' thinking strategies and the information processes underlying their inferences, how they remember and recognize, as well as means to test theoretical hypothesis by investigating what kind of information is or is not present subjects' protocols (Ericsson & Simon, 1993).

According to Ericsson and Simon (1993, pp. 5–6), the protocol analysis proceeds in the following steps: First, the researcher determines, based on theory, what behavior is relevant to be recorded and encoded and in what way. Second, the recorded protocols are preprocessed to remove any redundant information, such as pauses and repetitions, from the verbal data. Third, these preprocessed segments are coded as independent entities, in which the codes and categories are based on an existing theoretical model and its terminology. Alternatively, the encoding scheme can be left open and be developed in parallel with the data in repeated analysis cycles as the data is being analyzed and coded (Ericsson & Simon, 1993). Analysis can then produce evidence for a plausible or probable existing or new theory or a collection of supplementing or competing theories (Ericsson & Simon, 1993).

There are opposite views regarding the assumption that language or language-based data operate straightforwardly as a medium for transmission of thoughts between the minds of subjects and researchers. For example, discursive psychology (DP) provides an alternative approach to the position of language as data. DP is an approach that studies "the role of discourse and social practices" (Potter & te Molder, 2005, p. 2) to investigate psychological and social phenomena in different every day and institutional contexts in talk and text (Potter & te Molder, 2005; Tileagă & Stokoe, 2016). It has typically had a critical view on cognitive psychology and has tried to respecify a range of psychological and cognitive scientific issues and phenomena from different focuses, in terms of discourse and as discourse practices (Edwards & Potter, 2005; Potter & te Molder, 2005). DP investigates individuals in their everyday lives and how they "report and explain actions and events, how they characterize the actors in those events, and how they manage various implications generated in the act of reporting" (Edwards & Potter, 2005, p. 241).

According to DP, discourses are action-oriented and contextually situated (Edwards & Potter, 2005; Tileagă & Stokoe, 2016). Language is not a direct external expression of internal mental contents, such as thoughts or memories, but language is something that individuals use to perform their psychological states and psychological concepts in sequential contexts (Edwards & Potter, 2005; Tileagă & Stokoe, 2016). By using language in talking, individuals implement their mental resources, such as words, categories, objects, beliefs, and ideas, and construct their "social worlds through descriptions and accounts" (Tileagă & Stokoe, 2016, p. 4). DP studies how individuals manage psychological themes and how terms such as being angry, knowing, feeling, and believing, as well as their possible alternative concepts, are used rhetorically and interactionally in specific settings and normative orders, and how the use of these concepts indirectly builds things such as "agency, intent, doubt, belief, prejudice, commitment" (Edwards & Potter, 2005, p. 242). Psychological categories are understood as something that are relevant for the individual in the interactive, performed discourse but do not reveal what is in the individual's mind; thus, studying talk does not require mentalizing (Edwards & Potter, 2005). However, according to Edwards and Potter (2005), the concept of DP does not disagree that there could be internal, private mental realities, but they only function as grounds for speech actions, which are then performed in public occurrences. As Potter and te Molder noted, the discursive psychological approach "is not necessarily in opposition to more traditional cognitive science notions." (Potter & te Molder, 2005, p. 36). For instance, DP questions regarding the existence, construction, and operations of scripted descriptions and schemas (Potter & te Molder, 2005) can benefit from the application of cognitive scientific explanations.

The question about the relation between language and thought is something that has been disagreed upon by cognitive scientists, too. Some scholars have argued that humans have the natural, genetic disposition to acquire language and that language is a separate system independent from other cognitive systems, whereas others have argued that it is the general human

intellectual abilities and cognitive facilities that enable individuals to shape their "communication system to be something as complex as natural language" (Anderson, 2005, p. 364). Another view is that human intellectual capacities depend on language and linguistic training (Anderson, 2005).

Thinking is not just implicit speech or something equal to language, but it is an internal, nonmotor mental activity (Anderson, 2005). The ability to think has probably emerged in humans before language, and complex cognition does not require linguistic abilities. Similarly, even though different characteristics of thought processes of nonverbal or silent subjects compared to thought processes of verbal subjects are difficult to determine because of the lack of language that could be used to interview subjects, this does not mean that these subjects could not think (Anderson, 2005). For example, typically using the thinking-aloud technique in an experiment does not affect a subject's performance unless they are asked to explain the aspects of their thinking or behavior (Ranyard & Svenson, 2019). However, unconscious thoughts also exist, which cannot be reported, and there are other aspects to consider in data validity than, for instance, reactivity of verbal protocols (Ranyard & Svenson, 2019).

When individuals use language for speaking, they do not express everything that they mean, or only that what they mean (Gleitman & Papafragou, 2005). As Gleitman and Papafragou (2005) argued, "verbal reports do not come anywhere near exhausting the observer's mental representations of events" (Gleitman & Papafragou, 2005, p. 646). Instead, to provide rapid and accessible communication with language, humans use truncated expressions and sketchy language, which provide just enough semantic hints and pointers to their ideas, so that the competent listener can reconstruct the intended meaning "by applying to the uttered words a good dose of common sense – aka thoughts, inferences, and plausibilities – in the world" (Gleitman & Papafragou, 2005, p. 636).

There are views that having a particular language affects individuals' mental life and the ways individuals perceive and experience the world, which is called "linguistic relativity" (Gleitman & Papafragou, 2005, p. 633). However, research evidence suggests that ways of thinking and perceiving the world are quite similar for all people regardless of their linguistic backgrounds (Anderson, 2005). Evidence from, for example, studies with infants and individuals who have been under extreme linguistic deprivation suggests that, under the surface-level differences in languages, there are structural similarities shared by all humans:

> Focus on this kind of evidence suggests that cross-linguistic diversity is highly constrained by rich and deep underlying similarities in the nature of thought. Thus, rather than pointing to cognitive discontinuities among speakers of different languages, cross-linguistic diversity could reveal principled points of departure from an otherwise common linguistic-conceptual blueprint humans share as a consequence of their biological endowment. (Gleitman & Papafragou, 2005, p. 654).

Thus, although language and linguistic categorizations of objects that depend on the usage of a particular language can affect thinking, it is thought and thinking that produce ideas and determine language, which in turn can transfer

information about those ideas to the minds of other individuals (Anderson, 2005; Gleitman & Papafragou, 2005). A generally supported view is that the structure of thought determines the structure of language, and language is a tool for communicating thought (Anderson, 2005). Thus, as pointed out by Anderson (2005, p. 369): "in many ways, the structure of language corresponds to the structure of how our minds process the world," even though the semantic content organized and encoded in linguistic representations is not isomorphic to meanings in mental representations (Gleitman & Papafragou, 2005).

Communication through language requires not only language generation but also language comprehension. Language comprehension comprises both listening (or watching in the case of manual languages, such as sign language) and reading, where listening is often considered a more basic process (Anderson, 2005). In both cases, the message is first encoded in cognitive perceptual processes, and then transformed "into a mental representation of the combined meaning of the words" (Anderson, 2005, p. 388). In the third phase of language comprehension, the individual utilizes the meaning that is constructed in mental representation, for instance, to answer a question or to decide not to obey what the speaker requested (Anderson, 2005). According to Anderson (2005), meanings are interpreted from individual words, how words are syntactically ordered, and how they are put together in ways that are semantically plausible and make sense according to the listener's or reader's prior knowledge.

As Silverman noted, often qualitative researchers "simply do not question where the subject's 'viewpoint' comes from or how 'experience' gets defined the way it does" (Silverman, 2004, p. 343) by those individuals whose experience is being analyzed. The subject's own stories can be unintentionally replaced by those created by the researcher, displaying more organizational discourses and their predominant themes, and the researcher's own second-person perspectival perceptions, assumptions, and interpretations about the experience and its meaning for the experiencing individual (Silverman, 2004). To address this challenge, one possibility for a researcher is to discard any tacit assumption about the nature and order of social and moral reality, any remembered knowledge of features and categories of social lives that can affect what the researcher is able to "see" or point to in the investigation of experiences.

Instead, a researcher "must simply focus on what people do" (Silverman, 2004, p. 351) and let those observable, actual activities be the basis for explaining what makes experience an experience, and how. The analyzed data must be representative evidence for the conclusions that the researcher makes, and the analysis must aim at an unbiased, comprehensive description (Silverman, 2004). To conclude, to study mental contents in conscious experience, which can also tell about the underlying mental processes, such as appraising, apperceiving, and thinking, a researcher should focus on the actual linguistically expressed content in subjects' protocols, take language as something that can at least partially transfer information from internal thoughts into external speech, and simply focus on what people say.

## 7.2 Content-based approach and applied thematic analysis

When the focus of the analysis is on the content that people have produced in their verbal protocols about what they experience when they look at graffiti, rather than making inferences about the meanings of graffiti, the researcher must take the information contents in mental representations, which can be "concepts, schemas, thoughts, mental models or scripts" (Saariluoma & Nevala, 2006, p. 5), as direct content for their analysis. This approach can be called a content-based approach or content-based analysis (Saariluoma, 1990, 1997, 2001; Saariluoma & Nevala, 2006). In the content-based approach, the target of the research is in the contents of sense-making or meaningful human mental representations (Saariluoma, 1997). The content-based approach compliments heterophenomenology, as it "adopts a third-person perspective to human processes of thinking and studies these processes experimentally" (Kuuva, 2007, p. 24). Processes such as apperception, restructuring, reflection, and construction are important in the content-based approach, as well as in the study of art experience (Kuuva, 2007; Saariluoma, 2012).

Thinking-aloud protocols can be analyzed using a combination of theme analysis and qualitative content analysis, or an approach that falls under the description of applied thematic analysis, a methodological framework that synthesizes different techniques from varying theoretical and methodological approaches (Guest et al., 2012). Applied thematic analysis is considered a type of qualitative research that uses various strategies for collecting data and performing theory-based, exploratory analyses, where interpretations are referred to the collected raw data that can be text, sounds, and images (Guest et al., 2012). Applied thematic analysis is, in its essence, a form of interpretative analysis, although it also produces numerical data that can be used to bring forth more defined and concrete values (e.g., presenting results as "12 items" instead of "many items") and to compare different groups. While thematic analysis provides a technique that aims to maintain deeper meaning within the discourse in the analyzed text, content analysis provides a means to extract quantifiable and structured data and ensures higher objectivity toward the analyzed text (Guest et al., 2012).

Applied thematic analysis leans toward a positivist approach to qualitative data analysis but also involves highly interpretative procedural aspects, mostly in the identification of themes and data analysis (Guest et al., 2012). Therefore, applied thematic analysis can be understood as a hybrid of interpretative and positivist methodological frameworks (Guest et al., 2012). It has similarities with grounded theory methodology, a qualitative research method for "the discovery of theory from data" (Glaser & Strauss, 1967, p. 1). Grounded theory is a systematic way to obtain data and to find, compare, and elaborate themes from textual data by linking emerging codes and categories with formal theory (Glaser & Strauss, 1967; Guest et al., 2012). It uses iterative and inductive techniques, as theoretical models are constantly being checked against and grounded on data

in a process to generate theory (Glaser & Strauss, 1967; Guest et al., 2012). Even though, in applied thematic analysis, the resulting output does not need to be a new theoretical model, it emphasizes that all interpretations and thematizations are based on and congruent with the actual raw data (Guest et al., 2012).

In applied thematic analysis, which can be used in conjunction with protocol analysis, the data is coded as semantic units (Ericsson & Simon, 1993; Guest et al., 2012). Semantic units can be understood as an interpretative analysis of conceptual units of "speech bursts" (Ericsson & Simon, 1993, p. 279) that can consist of either individual words or longer phrases, depending on the analyzed block of text, as a count of each appearance of a certain semantically coherent unit under some theme, as a unit that is distinct of the preceding or following content of other categories within a sentence, paragraph, or a set of paragraphs (Guest et al., 2012). This way, one sentence can include multiple encoded semantic units or a set of several sentences can be encoded in just one larger semantic unit (Ericsson & Simon, 1993). For example, a description that a work has a bright red and yellow creature with piercing eyes, and that creature was large, is considered as one semantic unit about categorical theme "color," two semantic units about "character," one semantic unit about "face," and one about "size." For example, an explanation of historical events involving culturally important knowledge that is explained in a lengthy paragraph with multiple sentences, but where all content is about the same topic, can be considered one semantic unit and one code.

The main reason for this kind of analysis is to capture the content in meaningful wholes, which in some cases can be construed from multiple repetitive words that all refer to the same topic, whereas in other cases they can be construed of just one or two words or phrases. These types of differences can be due to the interviewed participants' individual linguistic abilities, their possession of refined vocabulary, or their differences in personality to verbally express their mental content. While one person might be very talkative and rambling in their speech, another can communicate the same semantic content in far fewer words. The focus is not on how each semantic unit is given value by the participant, but whether that unit is mentioned at all. Thus, every time a certain semantic unit is mentioned, its code is counted despite, for example, whether a participant says the assessed work had or was lacking a value related to that unit (e.g. a comment such as "Personally, I like these kinds of things" or "Personally, I don't like these kinds of things" were both coded as "subjective taste & preferences").

As noted by Guest et al. (2012), it is important to consider that in applied thematic analysis, the analyzed data as code frequencies that form further categories and themes is fundamentally based on interpretations made by an analyst from semi-structured interviews, which can result in an infinite amount of response options unto themselves, instead of dichotomous data. Other concerns are whether the interviewed groups were really representative of randomized samples and whether the sample sizes were adequate so their produced protocols would reflect mental content that is generalizable to larger

groups of people. Because of these issues, it is especially problematic to use parametric statistical techniques like chi-square, P-values, or confidence intervals. Instead, according to Guest et al. (2012), data comparisons should be made using descriptive methods and numerical data analysis.

## 7.3 Trustworthiness and reflection

Trustworthiness is an important aspect of every study. It is "a measure of confidence in your research work, a value of how well you designed and executed your study" and where "transparency is key" (Durdella, 2020, p. 3). Typically, in quantitative research, its trustworthiness, as how well and with what level of confidence the research has been designed and conducted, is described with concepts of validity, reliability, generalizability, and replicability (Durdella, 2020).

Validity "tries to assess whether a measure of a concept really measures that concept," and if "the concept measures the thing it was designed to measure" (Singh, 2007, p. 19). Validity can mean the "extent to which instruments measure what they were intended to measure" and the "extent to which a research effect can be trusted as real or as not 'contaminated' or confounded" (Coolican, 2009, p. 55). Validity can also mean "the extent to which an effect demonstrated in research is genuine, not produced by spurious variables and not limited to a specific context" (Coolican, 2009, p. 104). Reliability is the "extent to which findings or measures can be repeated with similar results" (Coolican, 2009, p. 55), signifying consistency of measures, which means "the ability of a measurement instrument to measure the same thing each time it is used" (Singh, 2007, p. 19). Generalizability, or transferability, refers to the context sensitivity and external validity of research, which means "the extent to which a research study can be generalized to other situations" (Singh, 2007, p. 21) and contexts (Coolican, 2009). Replicability, which is an important concept, especially in psychology, refers to repeating a completed experiment to determine whether the findings and claims made after an initial study can be replicated by other researchers (Coolican, 2009).

In qualitative research, trustworthiness is defined and reported in slightly different terms, such as the research's credibility, which equals validity in quantitative research; dependability, which equals reliability; transferability, which equals generalizability; and confirmability, which equals replicability in quantitative research (Durdella, 2020). However, as the above descriptions suggest, the basic ideas to reach trustworthiness are practically the same in both quantitative and qualitative research. In any type of research, as a part of general scientific practice, it is important to engage in a reflexive process to contemplate and report how characteristics, positions, biases, and beliefs of the researcher, research participants and the audience of research, process of inquiry, and the context of the research can affect the research, from its underlying theoretical assumptions to data collection, analysis, results, and their implications (Durdella,

2020; Guest et al., 2012). This reflection of who has an effect on the research and how they do it can also include explaining strategies that are used to manage these effects (Durdella, 2020).

According to Durdella (2020), usually in qualitative research, an initial phase of the reflexive process includes descriptions of the researcher's embodiments as identity categories, positions as ascribed and achieved characteristics, and positionality as socially constructed location, which influence as to with whom, how, and when the researcher interacts. Reflecting researcher bias is about considering what type of negative or positive contextual preconceptions, assumptions, and preunderstandings the researcher might have concerning the research topic as a phenomenon, research's purpose, research questions and settings, and researched subjects, which can impact data interpretation and theory building (Durdella, 2020; Elliott & Timulak, 2005). Reflexivity or a "reflexive attitude" allows self-awareness and critical self-inspection, and makes the researcher's own experience and subjective understanding, presuppositions, and perspective visible (Walsh, 2003). This way, the general audience, such as the community of other academics and members of private or public organizations and professional networks, can inspect and evaluate the research's trustworthiness as an acceptable degree of confidence "that a research study has captured a significant experience or process related to their topic" (Levitt et al., 2017, p. 9) and how that trustworthiness has been obtained (Durdella, 2020).

Often in qualitative research, reflective strategies and procedures that aim to help the exam and limit researcher effects on data are called bracketing, which means "researchers' concern for their own prereflective experience" (Walsh, 2003, p. 52) and where "researchers set aside ideas that might interfere with or inappropriately guide data collection"(Levitt et al., 2019, p. 13). While reflexivity is common practice, especially in social scientific research (Kakkuri-Knuuttila & Heinlahti, 2006), bracketing as a term to explain researcher roles, characteristics, or positions is not commonly used in quantitative research. Trustworthiness in quantitative research is based on the explication of general theoretical theories and assumptions, testable hypotheses or research questions, replicable research processes, reviewing findings against existing scientific knowledge and theories, and then making those findings available for the larger scientific community to criticize, replicate the study, and find evidence to support or rebut its findings (Coolican, 2009). This underlies a positivist approach that all scientific knowledge should be generalizable and independent of a particular researcher's individual biases, feelings, or thinking processes; anyone who has access to the presented theoretical underpinnings, methodologies, and formal scientific methods should be able to test a studied phenomenon in a systematic and transparent manner and to make interpretations directly from the observed data (Guest et al., 2012). In addition, there are certain things that cannot be subjectively identified in reflexive thinking by the researcher (Rescher & Grim, 2013). For example, Rescher and Grim (2013) argued that it is impossible for a reflecting subject to recognize and report in detail their own faulty beliefs, ignorance, or cognitive

errors, because "it affirms something that one cannot possibly know" (Rescher & Grim, 2013, p. 148).

Another consideration regarding research's trustworthiness is what type of influence the researcher has over participants and their reactions when they interact with the researcher during data collection (Durdella, 2020). The same participant can share different things with different people and in different settings, which has to be critically discussed. Participants, as well as social, cultural, and institutional settings, can also impact the researcher and the data collection and analysis (Durdella, 2020). There are several strategies for how to manage, diminish, or avoid the influences of the aforementioned effects. For instance, the influence of the researcher can be limited by using specific interview questions or prompts (Durdella, 2020). The collected data can be peer-reviewed as a form of triangulation technique to determine, for instance, possible researcher biases and problems in setting or presenting questions. In addition, the questions regarding different roles and their relations, settings, instruments, and procedures, such as how, where, and with whom the data are collected, need to be considered. In addition, research design and methods should be linked to the researcher's role and described (Durdella, 2020).

Applied thematic analysis combines both interpretative and positivist approaches (Guest et al., 2012). Protocol analysis is traditionally used in quantitative research with a positivist approach. So how can we reflect and report trustworthiness in a study that combines multiple data collection strategies and analysis techniques, such as applied thematic analysis and protocol analysis with thinking-aloud technique and interviewing? In protocol analysis, trustworthiness is measured in terms of quantitative research (Ericsson & Simon, 1993): with validity, reliability, generalizability, and replicability. When protocol analysis with the thinking-aloud technique (or think-aloud protocol) is used in the research, to provide reliability, a researcher must display "objectivity, reflexivity, and transparency" (Lundgrén-Laine & Salanterä, 2010, p. 572) of the whole research process and findings.

For example, Lundgrén-Laine and Salanterä (2010) used the thinking-aloud protocol analysis as a method in their study conducted in the healthcare context. They made several notes that can also be understood as examples of researcher reflection, for instance, noting how "planning of data collection, advice given to the study participants, and short practice sessions before the observation" (Lundgrén-Laine & Salanterä, 2010, p. 572), as well as the naturalness of the experiment situation, can impact the reliability of the study. Lundgrén-Laine and Salanterä (2010) described how the researcher should not interrupt the participant but only ask those questions that clarify the situation and help the participant to continue talking aloud. These strategies are also suggested in the case of qualitative interviews, where the researcher should proceed with "seeking a wide range of data, using nonleading language when asking questions, using open-ended questions, and closely following the interviewee," letting participants ask their own questions and using strategic questions to verify participants' interpretations and answers (Levitt et al., 2019, p. 13).

Other important points that can affect research reliability are "inclusion criteria, suitability of the study participants, and stability of the sampling" (Lundgrén-Laine & Salanterä, 2010, p. 572), as well as large enough sample size, to enable data saturation, participants' voluntariness and "ability to talk aloud, work experience," and external collaborators' "assessment of the potential participants" (Lundgrén-Laine & Salanterä, 2010, p. 572). Levitt et al. (2019) emphasized grounding researcher interpretations on data that have good quality and support understanding, including additional materials, such as images and quotes, to further support the findings.

Lundgrén-Laine and Salanterä (2010) also gave examples of how to improve the research trustworthiness by considering communication and interaction between the researcher and participants, evaluating reliability throughout the analysis, recognizing preconceptions, and defining coding that also needs to be "consistent" and "repeatable." Similarly, Levitt et al. (2019) suggested researchers to consider researcher–participant dynamics and interaction effects on data collection during interviews and researchers to reflect on how their perspectives, values, and experiences can influence data collection and analysis. Reliability can also be improved by inspecting intercoder reliability and by letting the researcher, who is more skilled on the substance, define codes and perform first coding, which is then evaluated by another researcher; then, different researchers' "percentages of agreement" (Lundgrén-Laine & Salanterä, 2010, p. 572) are calculated. Levitt et al. (2019) suggested using strategies such as independent coders, using journals and memos, participant dialogues, or applying critical researcher perspective in interview research.

Finally, Lundgrén-Laine and Salanterä (2010) concluded that contrary to the general guidelines in protocol analysis, in nonstandardized situations, context also needs to be taken into account in the analysis; otherwise, using context-free coding, "the process of decision making is lost" (Lundgrén-Laine & Salanterä, 2010, p. 572). According to Levitt et al. (2019), in qualitative research such as interviews, findings should be considered "within their appropriate context" and researchers should provide information about "the history, the setting, the participants, and the researcher themselves" (Levitt et al., 2019, p. 15) to enable the reader and researcher understand the contextual features that can impact and even improve the findings. Thus, there are several strategies to improve the trustworthiness of a research, whether qualitative or quantitative, and even though there are some differences, many of these strategies are very similar. In the case of heterophenomenological protocol analysis that adopts thinking-aloud and interviewing techniques and applied thematic analysis, descriptions of research trustworthiness follow a more positivist, quantitative research style of reporting.

## 7.4 Discussion on methodology

An individual cannot be conscious of or verbally express their tacit knowledge and unconscious mental contents. Therefore, researching experiences requires that the researcher understands those "unconscious elements of representations" (Saariluoma et al., 2016, p. 159). The explanatory framework, theoretical pressupositions and to objectively examine the phenomena to be explained are based on researcher's understanding (Ericsson & Simon, 1993). If a researcher is investigating mental phenomena or mental contents in consciousness, they must understand the general constraints of concepts like cognition, cognitive processes, the mind, and consciousness, which have all been identified by previous research and scientific theories. For example, in protocol analysis it is required that human cognition is understood as an information process where "a sequence of internal states successively transformed by a series of information processes," and where information is stored and accessible in memory with different capacities and access times, ranging from short-term to long-term memory (Ericsson & Simon, 1993). Using verbal protocol analysis is there for a valid method to study the cognitive processes and contents of conscious experience also in this research, where the theoretical HTI framework is based on similar hypothesis about the cognition and cognitive processes.

This also means that in case of studying graffiti experience, the researcher must possess knowledge not only on graffiti history or sociocultural practices and definitions, but also a vast knowledge about biological, psychological, cognitive, and social aspects that can affect conscious and unconscious mental contents in experience. As Ericsson and Simon note, "A single verbal protocol is not an island to itself, but a link in a whole chain of evidence, stretching far into the past and the future, that gradually develops, molds, and modifies our scientific theories" (Ericsson & Simon, 1993, p. 280), and the researcher who analyzes the content must be able to associate and link the verbalized content with the discourses of the subjects as well as with the discourses of science.

As noted in Article II, researchers' understanding of their position and embodied experience can play a part in knowledge creation in graffiti and street art research (GSAR). Even though in this thesis, research reflexivity and bracketing are not reported in the way that is typical in qualitative social research, it is still valuable to briefly describe the researcher's position regarding theoretical knowledge and presumptions preceding the study and how subjects and scientific discourses are then imbued in research. The author did not have knowledge or experience of graffiti before beginning the research, nor did they have an ingroup member status within any subcultural graffiti group or crew (Taylor et al., 2016). Such a subcultural status can affect graffiti group members' perception of how an outgroup researcher can exploit knowledge and other cultural property that is psychologically "owned" collectively by members inside the graffiti culture (Verkuyten & Martinovic, 2017). However, graffiti-related knowledge, which is described in Section 1.5, was gained through a thoughtful

literature review, which was mostly conducted in the early phases of research, as well as thorough the research process based on the grounded theory (Glaser & Strauss, 1967). In addition to the literature review (Chapters 2–6), which formed the theoretical background presented in this thesis, cognitive scientific theoretical presumptions and conceptual frameworks regarding experience as a conscious mental phenomenon were influenced by the researcher's previous investigation about passengers' experience of comfort during an escalator ride (Myllylä, 2016).

All interpretations made in any scientific research are based on both the empirical findings and the theoretical knowledge that the researcher possesses. Interpretations can be biased, as the researcher can be, for example, focused toward a predetermined topic or might be preinclined toward finding some expected results. The researchers can lack the sufficient knowledge required to recognize views or aspects in results that a more experienced researcher or a researcher from a different disciplinary background might notice. However, by familiarizing oneself with the necessary knowledge and theories, and using heterophenomenological and content-based approaches, methods such as protocol analysis and applied thematic analysis can decrease the effects of bias and increase the reliability and trustworthiness of the research.

## 7.5 Experiments

In general, graffiti and street art has been researched from the point of view of visual expression, art form, or communication, as a criminal activity or a social psychological phenomenon within young adolescents. This research investigates how graffiti is experienced as an embodied experience of the body and the mind, and what types of information contents exist in the underlying mental representations during an experience. Thus, the methodology of this thesis is based within HTI framework following UX and user psychology paradigms, where the data from introspective protocols is analyzed from a third-person, heterophenomenological perspective. In the spirit of the content-based approach, the contents are analyzed using applied thematic analysis, which is somewhat similar to protocol analysis.

In this thesis, the experimental research is mostly based on an experiment that used protocol analysis and the thinking-aloud method to investigate the experiences of different graffiti stimuli. In additional experiments, a questionnaire is used to collect participating subjects' assumptions of graffiti artists and graffiti works in open-ended questions. The analyzed results are reflected against the results from the content analyses of earlier thinking-aloud protocols.

### 7.5.1 Experiment procedures

Two experiments were conducted in a graffiti event called "Demolition Art Project" during late summer of 2016. The Purkutaide event was a project to paint graffiti and street art in and outside of two abandoned buildings in the center of Kerava, Finland. In the first experiment, 19 people individually assessed four selected graffiti works and one mural. Participants' thoughts, which loosely followed a semi-structured interview, were recorded to a tape recorder during a thinking-aloud period, following the method of protocol analysis. The second experiment was a "pop-up research event" where total of 31 people assessed two graffiti works by filling in a questionnaire that included adjective pairs, statements in a Likert scale, and some open-ended questions. These questionnaires produced qualitative and quantitative data. However, only some of the open-ended questions were analyzed and included in this thesis research. Data from both experiments were analyzed using an applied thematic analysis, which is quite similar to the protocol analysis method. Graffiti stimuli in the first experiment are presented in Figures 2-6 and graffiti stimuli in the second experiment are presented in Figures 3 and 7.

FIGURE 2 The first graffiti stimulus in the first experiment. Photo: Jouni Väänänen, 2016

FIGURE 3 The second graffiti stimulus in the first experiment and one of the two stimuli in the second experiment. Photo: Jouni Väänänen, 2016

FIGURE 4 The third graffiti stimulus in the first experiment. Photo: Jouni Väänänen, 2016

FIGURE 5 The fourth graffiti stimulus in the first experiment. Photo: Jouni Väänänen, 2016

FIGURE 6 The fifth graffiti stimulus in the first experiment. Photo: Jouni Väänänen, 2016

FIGURE 7 Another graffiti stimulus of the two stimuli in the second experiment. Photo: Jouni Väänänen, 2016

In the first experiment, participants thought aloud while experiencing four graffiti works and one mural inside the research location (Figures 2-6). Participants were instructed to try to speak aloud everything that came to their minds, as if the researcher was not present. Thus, the aim of the experiment was to collect participants' explications of the mental contents in their experiences, where they needed to "label information that is held in a compressed internal format or in an encoding that is not isomorphic with language" (Ericsson & Simon, 1993, p. 79-80). As expected, this labeling of mental information content often requires time and effort from a participant. However, this research supports the argument first made by Ericsson and Simon (1993) that cognitive processes are not altered because of verbalization, but rather on the contrary, processes can be explained based on the verbal protocols. The material of thinking-aloud protocols from the first experiment was analyzed in Articles IV, V and VI. In the second experiment, participants filled in a questionnaire that consisted of several questions on semantic and Likert scales and some open-ended questions about two graffiti works in Figure 3 and Figure 7. However, even though some preliminary findings were referred to in Article III, only some of the material from the second experiment was analyzed in Article V in greater detail.

Data in the first, thinking-aloud experiment was collected using a semi-structured interview and a questionnaire with some open-ended questions was used in the second experiment. The presented questions were based on existing theories from user psychology and aesthetic research including questions that reflected attention and perception, thinking, emotions, and meanings (Saariluoma, 2004; Saariluoma et al., 2016), and were also based on previous research about the psychological explanations of producing graffiti by Taylor (2012), Hedegaard (2014), and Othen-Price (2006).

Questions were based also on aesthetic art experience, especially the judgment of beauty by Kant (1790/2007), aesthetic appreciation and judgements by Leder et al., (2004), aspects related to the effect of expertise on art experience and the mental contents by Kuuva (2007), and experts' judgments of art by Pihko et al. (2011). Graffiti experience is often considered to be highly context-specific so the questionnaire also contained questions about graffiti research in their in-situ locations by Bloch (2016) versus in museum experiences by Kirchberg and Tröndle (2012).

### 7.5.2 Special notes

Even though questionnaires are a popular method in quantitative psychological research, self-report questionnaires are rarely used in qualitative research "because they typically do not stimulate the needed level of elaboration sought by the qualitative researcher" (Elliott & Timulak, 2005, p. 150). This methodical challenge is also discussed in Article V, where participants' written protocols in open-ended questions were found to be much shorter and simpler than those produced with an oral format. One possible problem that can limit the facilitation of qualitative data in the written mode of the thinking-aloud method is attributed to the differences between language production in speech and writing.

Language production can be understood as "a goal-directed activity having communication as its main goal" (Eysenck & Keane, 2010, p. 417), where social and motivational factors are also in play. Speaking and writing share some similar psychological processes, as they both attempt to communicate information and meanings. They are based on the same knowledge structures and contents, and as suggested in some clinical cases, seem to depend on processing in the same neural areas (Eysenck & Keane, 2010). However, there are several differences between speaking and writing. As Eysenck and Keane summarized, "spoken language is often informal and simple in structure, with information being communicated rapidly" (Eysenck & Keane, 2010, p. 418) during interaction. During the experiments conducted in this study, many participants later reported to the author that handwriting took considerable time and effort. This is no surprise, considering that "people can speak five or six times faster than they can write" (Eysenck & Keane, 2010, p. 418). Language in written format is often more complex and formal and needs to be written in clear statements to ensure correct information communication, because the writer does not receive immediate feedback from the reader (Eysenck & Keane, 2010). Spontaneous speech also contains elements that make it easier to understand, such as discourse markers (e.g., "oh," "so," and "anyway"); prosodic ques, such as "rhythm, stress, and intonation" (Eysenck & Keane, 2010, p. 418); and coordinated bodily gestures, which are also habitual movements that occur when an individual speaks (Eysenck & Keane, 2010).

Speaking and writing both require demanding cognitive processing, and there are several strategies to reduce the cognitive load they cause (Eysenck & Keane, 2010). For example, when individuals talk, they usually repeat the same

phrases that they have been using before or simplify their expressions in which the meaning of the sentences is abbreviated. In writing, the information stored in long-term memory is retrieved and organized in complex thinking processes into actual writing (Eysenck & Keane, 2010). How an individual produces and structures ideas into actual writing depends on, for instance, the writer's conceptual, socio-cultural, metacognitive, and strategic knowledge, goals, and level of expertise in writing (Eysenck & Keane, 2010). These processes require active use of the working memory and its components, such as central executive, visuospatial sketchpad, and the phonological loop, all of which have limited capacity, as well as several other cognitive processes, such as attention and thinking. The active use of different information processing systems is cognitively demanding, which can make writing arduous for the writer. Anything that affects any of these processes likely decreases the quality of writing (Eysenck & Keane, 2010). In addition, spoken or manual language is a complex, spontaneously acquired ability to communicate in a way that is unique to humans (Anderson, 2005; Pinker, 1994). This biological propensity, or a "language instinct," has developed as an evolutionary adaptation to exchange information (Anderson, 2005; Pinker, 1994). Writing, in turn, is a system that has been invented a few times in history by culturally developed societies to designate some linguistic structures in symbols (Pinker, 1994). Written language is not a spontaneously acquired instinct, but it needs to be taught, and learning to write and read is also associated with difficulties such as agraphia, illiteracy, and dyslexia (Pinker, 1994).

Thus, presumably, when an individual is required to consciously think about their thinking and experiences during an experiment, the activity that involves a complex problem-solving task has a high cognitive load for the individual's overall information processing system and especially the central executive in working memory. Writing causes additional cognitive load, and to cope with this load and manage limited mental resources, only minimum effort is put into writing as a cognitive activity. Moreover, long questionnaires with open-ended questions that take much time and effort to write by hand can cause not only mental but also physical fatigue to the subject. In addition, in writing, there is no direct interaction between the writer and reader, which can motivate the writer to engage in a broader, multifaceted, and reciprocal conversation. Spoken (and manual) language is a more "natural" way for humans to communicate than writing. Moreover, a subject cannot be motivated to give a detailed and elaborated explanation in the verbal protocol. For example, as Ranyard and Svenson (2019) noted, if a subject apperceives a problem as something unimportant or disinteresting, the subject can provide only a simple solution with only a little reflection in their verbal protocol. All these factors can cause individuals to produce more data in spoken than written protocols, as observed in Article V.

One focus of this thesis is to investigate the differences in mental contents between laypeople and experts. Therefore, participants in these two experiments were also grouped into two groups of laypeople and experts. However, what

must be noted here is that during different stages of data analysis for different types of content (e.g., analyzing data for emotional contents, empathic contents, and contents between laypeople and experts), the group compositions slightly shifted as the definition of "expertise" was clarified. In analysis for emotional contents (Article IV) and empathic contents (Article V), the groups were organized based on their level of graffiti expertise, given the definition that laypeople did not know about graffiti, nor did they produce any. This resulted in a group of ten laypeople and a group of nine graffiti experts. When the definition of "graffiti expert" was clarified to be more in line with the definition of "interactional experts" provided by Collins and Evans (2007), to include those who know about graffiti more than general laypeople but who do not necessarily produce graffiti themselves, the groups then consisted of nine laypeople and ten experts in analysis done in Article VI. However, this does not mean that the change of group subjects makes the results of the analysis unreliable. It only means that the researcher has been able to refine the concept of "expert" after new information had been acquired and new insights had been made which thus, improved the explanatory power of the research.

# 8 INFORMATION CONTENTS IN MENTAL REPRESENTATION IN GRAFFITI ART EXPERIENCE

The main research questions were presented in Chapter 1. Firstly, what are the information contents in mental representations when people experience graffiti? Secondly, do graffiti experts have different mental information contents than laypeople? Thirdly, what kind of differences are there in the mental contents of laypeople and experts? The findings for these questions will be presented in the following text.

This thesis inspects the mental contents in graffiti art experience and the underlying mental factors as a cognitive mental phenomenon that emerges as a result of information processing in the experiencing mind. A process that leads to conscious experience is evoked by internal or external stimuli and, as a result of causal events and the brain's information processing, it causes a conscious, felt experience (Carruthers, 2000; Chalmers, 1996; Dennett, 2002; Revonsuo, 2010). Mental experiences are internal feelings of a conscious agent (Chalmers, 1996) that contain meaningful, unique content (Dennett, 2002). The types of content that an experience has and the different kinds of mental representations that an individual forms are not only affected by the sensory stimuli from the external environment, but also, among other types of information, from the subjective psychological and cognitive characteristics of an individual, and previously learned knowledge and life experiences in the form of concepts stored in an individual's memory (Ericsson, 2018). Experience is also affected by the subjective and intersubjective cultural values, attitudes and beliefs, goals, contexts, and other reasons (Saariluoma, 2001; Saariluoma et al., 2016; Von Eckard 2012; Kuuva, 2007; Zeki, 2009).

Visual art and graffiti are made possible through the use of technology and tools to produce different kinds of pictures which can further be seen not just as visual copies of the world, but as tools for displaying something that is normally hidden (Dennett, 2017; Heidegger, 1935/36/1976; Noë, 2015, pp. 152–161). Art-induced experiences, either when perceiving, thinking about, or producing

artworks, are results of the interaction between the individual's biological and mental functions, their knowledge and skills, and their physical and sociocultural world along with its objects and other individuals (Noë, 2015; Solso, 2003; Zeki, 2009). It is a social, psychological, and cognitive process that molds individuals' behavior, even their brain structures and functionality (Han et al., 2013). Because graffiti can be considered a form of urban art (Austin, 2010), art experiences can be researched using graffiti as experimental stimuli.

The essential function of having a conscious experience for the individual agent, who has goals and intentions, and who interacts with the external world and its entities, is to make sense of that world and the individual's own situation, as well as those of other entities and objects. This means that a conscious experience that the individual is aware of during moments of interaction must have some contents with meaning that represent the reality and make sense for that individual (Crane, 2011; Egan, 2014; Fresco, 2012; Montague, 2016; Pitt, 2020; Saariluoma, 1997; Thagard, 2005; Van Gulick, 2012; Von Eckardt, 2012). In an individual's subjective interpretation process in which meaning is constructed, new information is reflected against the existing mental information, and then integrated and constructed into new conceptual knowledge structures. This, what underlies human thinking and meaning-making, when looking at graffiti, is the result of emotion evaluating and reflected in the appraisal process, while construction of emotional and conceptual contents into meaning-making representations occur in the apperception process (Kant 1781/2009; Kuuva, 2007; Saariluoma, 1992, 2001, 2005, 2012; Saariluoma & Hohlfeld, 1994). When faced with a need to solve problems in order to reach goals, or when encountering inconsistent or conflicting situations that causes apory , or a moment of bafflement (Rescher, 2013), people use the restructuring process, where existing mental representations are reconstructed into new mental representations to provide new insights and knowledge of solutions (Halpern, 2013; Kuuva, 2007; Köhler, 1925/1959; Newell & Simon, 1972; Piaget, 1964/2003; Rescher, 2013; Saariluoma, 1990, 1992; Saariluoma & Hohlfeld, 1994).

The human mind is not just as a brain in a vat, but it is an embodied mind where the mind and body are intertwined. Information that is available for mental processes exists not just in the brain, but it is extended and embedded into external objects and the actions of agents in the world and in the subject's environment (Clark, 1999; Clark & Chalmers, 1998; Varela et al., 2016). For example, mental information that humans can utilize can be extended and embedded, becoming available in objects in the form of visual signs and symbols, such as letters, and as usable tools, such as calculators or computers, as well as works of art or visual products, such as graffiti, where information is created and embedded in the object by an artist and extracted and interpreted by a spectator. However, to be able to extract meaning from a work of art, and to see things other than sensory information that, in theory, is perceivable by most people with normal vision, an individual must possess learned semantic concepts related to the different abstract aspects of the work, such as its history, style, and creator (Freeland, 2001; Kuuva, 2007; Lindsay & Norman, 1977; Solso, 2003; Zeki, 2009).

Humans are embodied minds who act, react to, control, and manipulate themselves and objects in physical and social worlds, although they can think and dream about abstract things, too. Humans are cognitive creatures that are able to reason and make inferences, predictions ,and plans, and to explain the world, and the lives and actions of other creatures and objects by using concepts, analogies, imagery, causal thinking, and normative rules where conscious thoughts are often postulated in narrative form (Beach et al., 2016; Dennett, 1993; Singer, 2004). Additionally, human are social creatures who must be able to successfully exist and coexist in the world in interaction with others (Allen & Williams, 2011; Bronfenbrenner, 1977, 1995; De Jaegher & Di Paolo, 2007; Keltner et al., 2014; Saariluoma et al., 2016; Uzefovsky & Knafo-Noam, 2017). As is the case of any other abstract information, sociocultural meanings, codes, and practices can be embedded in objects as well as in places and events. In a conscious experience, different perceptions from the senses, and concepts and cognitive and emotional schemas from memory are present in representations where analogies and causalities are drawn between people, things, activities, events, locations and contexts, meanings, feelings, and intentions. The use of analogies in the construction of mental representations is closely linked to the idea that Silvennoinen et al. (2017) refer to as "theme impressions," where a theme is understood as a sense-making vehicle that can be reflected in relation to an individual's visceral or perceptual level, or a reflective level containing mental associations and lived experience.

Individuals have the ability to extract information that they deem important and make inferences and judgments about that information from external objects, such as works of graffiti. However, people must be able to recognize the semantic meanings that are embedded in the graffiti if they want to thoroughly understand the work and make inferences. These semantic meanings come from the knowledge that has been gained from individuals' lived experiences, but meanings are also derived from knowledge that is taught and acquired in interaction with an individual's sociocultural world, in this case, the specialized domain of graffiti (Ericsson, 2018; Solso, 2001, 2003; Zeki, 2009). This specialized domain contains information about abstract concepts such as cultural norms, practices, values, and symbolic codes, but also about visual styles, technology, and a skillful mastery of different tools, techniques, and aesthetic expressions that are required when creating, comprehending, and/or interpreting graffiti. As people learn more about graffiti, they gain more information regarding these abstract concepts and procedures, which are expressed as subjective knowledge and skills (Ferrell & Weide, 2010). Thus, the more learning that occurs, the closer an individual becomes to being an expert, differing from laypeople or novices because they possess larger, more complex, and highly nuanced conceptual knowledge structures than those who are not experts. This knowledge is also present in the conscious experience of experts, affecting what they "see" when they look at graffiti.

This research explores the idea that representational mental information content has different types of information contents (Chalmers, 2010; Macpherson

2011, 2012; Saariluoma, 1997; Siegel, 2006, 2010; Toribio, 2018). When people experience the world, they have internal mental representations of it. These representations are not exact replicas of the world, or even of the inputs from sensory data, but they can be understood as combinations of individual's perceptions and of subjective knowledge drawn from their memories, and which affect each other in an ongoing process of becoming conscious. The knowledge in individual's memories can be conceptual and abstract and, depending on the theory, also non-conceptual. However, it is important to emphasize that there are two types of information content that are integrated in representations: the perceivable content that is based on individual's sensory systems' information inputs, and the non-perceivable content that is based on the learned knowledge within individual's memories (Kuuva, 2007; MacPherson, 2011; Saariluoma, 1997; Saariluoma et al., 2015; Siegel, 2006). When humans experience something, not only do they perceive things, they also apperceive things as they process new information against their existing information, such as facts, their lived experiences, beliefs and expectations, personal and cultural values, and norms. This information is processed in the form of concepts, propositions, mental imagery, or other formats, which are parts of schemas, mental models, or contextual frames. Individuals can also think critically, make new inferences, and have insights and new ideas, all of which are based on the restructuring of the apperceived mental representations into new representations.

Another way to differentiate the types of mental contents is to understand them as phenomenal content (Brewer, 1999; Chalmers, 2006; Siegel, 2006; Silins, 2013), such as how the contents of consciousness feel like, and as conceptual and non-conceptual content about the knowledge of what things and creatures are believed to be and how they exist in spatiotemporal reality (Chalmers, 2006, 2010; Chuard, 2018; Pitt, 2020; Saariluoma, 1997; Siegel, 2010, 2016). When people think about the conscious mind, they can distinguish that it has embodied, social, cognitive, emotional, and conative dimensions (Hilgard, 1980; Kant, 1781/2009). These dimensions can also be found in the different types of experienced mental contents. People have sensations and perceptual content regarding so called primitive or low-level properties of objects (Chalmers, 2006; Russell, 1910, 1921; Zeki, 2001, 2009). People also have content about how they, as individuals, or others move their bodies or how objects move in three-dimensional and temporal spaces (Chalmers, 2010; Cussins, 1990; Peacocke, 1992). People have content that is about physical and social positions of oneself, or other persons and objects in relation to themselves, other entities, objects, and the world (Egan, 2006, 2007; Laurence & Margolis, 2012; Liao, 2014; Ninan, 2012). People also have rich, high-level content about semantic information and concepts as well as content about feeling the experience not just via bodily sensations, but through content that is felt as emotionally moving and that motivates an individual to approach or avoid something (Siegel, 2014).

Seeing an artwork, such as a graffiti, is experiencing the artwork. This experience consists of several aspects including the following: perceiving the type of object and its visual properties that are presented in the work, having

emotions evoked by the artwork and considering the work to be interesting and motivating for further engagement, associating learned sociocultural facts, styles and conventions, norms, values, and personal or shared histories with the work, combining the past, the current moment, and imagined future consequences about the object and its maker into a coherent, sensible narrative, imagining sensory-motor movements, planning, and effort, as well as distinguishing the tools, techniques, and skills required to accomplish that type of work, evaluating the work's aesthetic aspects, and estimating its meaning for the self and others. These aspects can be described as distinct types of information in mental representations that become conscious in the experiencing subject's overall experience.

## 8.1 Main contents and findings of articles

The following sections will briefly outline the main contents and findings of the six articles that investigated the main research questions of this thesis. The main contribution of Articles I–III is in building the theoretical background, although the empirical experiments in the Demolition Art projects have been briefly referred to in some of the articles. Article I's subjects about graffiti as a construction of a narrative and embodied palimpsest. Article II discusses the concept of the embodied mind and how it can be introduced in a graffiti and street art methodology. Article III concerns how graffiti can be experienced as embodied, spatiotemporal experience that entails social practices and physical places. Articles IV–VI further explicate this theory and the models used based on empirical findings.

Article IV explores how graffiti is emotionally experienced by laypeople and experts in an empirical study. Article V analyzes data extracted from the same material but focuses on an empathic understanding within a graffiti experience. Article VI analyzes data extracted from the same material with qualitative and quantitative analysis, describing the types of mental contents, and the differences in these mental contents between laypeople and experts, and an explanation for the process of becoming conscious of these mental contents.

### 8.1.1 Graffiti as a palimpsest

Article I presents many of the theoretical foundations that are applied in the rest of this thesis research. This article argues that while graffiti can also be categorized as a form of urban, post-modern art, it does not necessarily mean that all graffiti, or graffiti a priori, could be considered "art," as art is something that is defined and fostered by sociocultural communities and their different stakeholders (Kimvall, 2014). Graffiti as a "palimpsest" is a layered and overwritten construct where the hidden meanings of the past, the present, and the future are entailed in a dynamic process that affects the whole product, both

in the concrete or physical and the abstract or psychological sense (Dillon, 2007; Lundström, 2007).

Graffiti art can be understood as artifacts called palimpsests and the act of producing graffiti can be seen as an embodied act (Noland, 2009; Rowe & Hutton, 2012) of palimpsesting. When a graffiti writer is creating palimpsests, they are expressing their mental contents, such as meanings, fantasies, and memories, and developing their graffiti identities in the forms of physically concrete and semantically abstract stories in a discourse with other members of their subculture and their cultural master narratives (McAdams, 1988, 2017; Schacter, 2008). Graffiti writers interact with other people and anchor themselves to physical and social worlds with graffiti artifacts (Pan, 2016; Schacter, 2008). Observers also participate in this act of palimpsesting, as their interpretations depend on their abilities to recognize and understand the embodied actions, the practices, and skills, along with the sociocultural meanings and specialized knowledge from graffiti artifacts (Bowen, 2010).

### 8.1.2 Graffiti and the embodied mind

Article II (sections: "The embodied as a framework" and "Embodied methodology: Setting up the research, expanding the analysis") continues the theoretical description of embodied graffiti experience and practices, understanding them as aspects of a concept called "embodied mind." Producing, perceiving, and interpreting graffiti can be understood as embodied experiences, where the mental content and bodily movements and practices are not approached as distinct parts of an experience, but as inseparable and intertwined features that, together, construct the embodied mind (Clark, 2013). Considering humans as embodied minds who act as intentional agents in social and physical environments also brings important addition into graffiti and street art research and its methodologies. In what can be called "embodied methodology," mental information that relates to identities, cultures, bodies, and any other mental content can not only be investigated with verbal expressions, but as a process where information is embedded in the gestures and appearance for graffiti writers in a dynamic, bidirectional interaction with other people, including researchers, in different spatiotemporal situations (De Jaegher & Di Paolo, 2007; Fuchs & De Jaegher, 2009; Noland, 2009; Reinhardt & Loke, 2013; Rowlands, 2010).

Embodied methodology includes also understanding graffiti writers' produced artifacts as embodiments or extensions of their creators' minds (Hannerz, 2017; Schacter, 2014), where information is embedded in the physical objects and extracted by their observers against their existing mental content such as cultural and conceptual knowledge, subjective past life experiences, emotions and goals. How embodied minds and artifacts are intersubjectively interpreted and experienced is also affected by sensory perceptions, sensations, and bodily actions, such as movements and gestures, habits and skills, physical characteristics, and gender (Gallagher & Zahavi, 2012; Ignatow, 2007). Mental

content, perceptual and inferential processes, bodily movements, and physical characteristics all influence and modulate one another within an individual and also between different individuals. How one thinks, feels, and behaves can affect the unconscious behaviors, thoughts, and emotions of the other, which is also the case in graffiti experience research.

### 8.1.3 Graffiti art as a spatial and social experience

Article III explores how researching and understanding graffiti from the viewpoint of user psychology can be used to design user experiences in physical and built environments, thus broadening the theoretical knowledge of this research. Graffiti as visual objects and as social and bodily practices in urban environments and their evoked mental experiences in graffiti "users" can also be researched by using the UX and user psychology paradigms that are typical within Human Technology Interaction (HTI) frameworks. By studying different spatio-cultural practices, interactions, and narratives of the experiences that graffiti evoke (Arnold & Ballantyne, 2004, Casey, 1993; Ylinen, 2018), it is possible to study the underlying mental content and mechanisms, the behaviors and practices that they cause, and even larger scale socio-cultural aspects and their evolution.

Bodily movements and sensory-motor actions are important ways to immerse an individual into concrete places and the sociocultural discourses that are related to activities specific to those spatial locations. Built urban environments can be shaped by graffiti, which alters how those environments are physically and socioculturally experienced and interpreted. Experiences of place are affected by the individual's movements, perceptions, and sensations of the material things and spatiotemporal networks, but also, by mental characteristics and processes, cultural knowledge and personal history, stereotypes and attitudes, norms and values, interests, expectations, and goals in that specific situation and place (Deshpande, 2016; Langer, 1953; Norberg-Schulz, 1980). These experiences can be stored in individual and collective memories and can turn the graffiti location into a site of memory that has its own identity and characteristics (Hildebrand, 1999; Marsh & Hick, 2014; Schacter, 2008; McCormick & Jarman, 2005; Norberg-Schulz, 1980; Relph, 2008; Winter, 2010). Ubiquitous and adaptive technologies and virtual reality can affect the experiences and interactions of individuals in built spaces and future realities.

### 8.1.4 Emotions in graffiti experience

Article IV investigates emotions that are experienced during a graffiti art experience in an experiment conducted at the Demolition Art project. Analysis focuses on protocols from four graffiti works shown in Figures 2-5. Emotions are essential in aesthetic and art experience and can affect the valuation and appreciation of art, which is also the case for graffiti. Examples of emotions evoked by art that can also be found when people assess graffiti vary from

pleasure, interest, and wonder to disinterest, embarrassment, disappointment, disgust, and even anger. Studying the emotions that can be evoked by graffiti poses several challenges. For example, emotions are difficult to identify and verbally describing an emotional episode can include multiple, ambiguous, and even contradictory emotions (Barrett 2006; Frijda, 2008; Tinio & Gartus, 2018). Experiencing emotions is based on an iterative appraisal process during interaction between the experiencing individual and the features of the work. These features can either be perceivable, visual features or non-perceivable, symbolic features.

Judging graffiti as beautiful or ugly can be very difficult, as these concepts might not easily be associated with the concept of graffiti. The aesthetic experience of graffiti can also be related to cultural and social knowledge of graffiti, where aesthetic judgments and the appreciation of graffiti art are separate phenomena (Gartus & Leder, 2014). Graffiti emotions can be grouped in high level groups of emotions (Silvia, 2008). Knowledge emotions are related to goals and learning of the experiencing individual, novelty, exceptionality, complexity, and comprehensibility of an event or an object and they contain emotions such as interest, confusion, surprise, mysticality, and awe (Silvia, 2008, 2010; Fayn & Silvia, 2015; Fingerhut & Prinz, 2018). Hostile emotions (Silvia, 2008, 2009) consist of emotions such as anger and disgust, and they can also be found in some participant protocols. Self-conscious emotions (Silvia, 2008, 2009) include emotions such as pride, shame, guilt, regret, and embarrassment. These emotions were often present, especially among graffiti artists when the assessed artwork was reviewed against their own artistic practices, standards, and goals.

### 8.1.5 Empathy in graffiti experience

Article V investigates how empathy is experienced in technology and graffiti. It presents two experiments conducted at the Demolition Art project to study the empathetic experiences of participants when they experience graffiti (Figures 2-6 in the first experiment, and Figures 3 and 7 in the second experiment). The study presents the importance and possible challenges of empathic understanding, especially for designers when they are designing technological artifacts for their end users. The concept of empathy has several partly overlapping or conflicting definitions. In general, empathy can be understood as the ability to understand the mental contents of other creatures and objects, such as artworks or graffiti (Carroll, 2017b; Currie, 2011; Dong, Dong & Yang, 2017; Freedberg & Gallese, 2007; Gallagher & Zahavi, 2012; Kesner & Horáček, 2017; Maibom, 2017; May; 2017; Thompson, 2011).

Results from the two experiments suggest that people have empathic experiences through two mental processes. One way to gain empathic understanding is through what can be called the "embodied processes," which relates to imagining bodily actions and sensations from the behalf of the artist and on behalf of the graffiti artifact itself. Secondly, people also experience empathy through the inference processes, where they make interpretations and

explanations through semantic analogies and narratives. Embodied and inference-based processes both seem to use simulation and theorizing and can be based on unlearned, innate, pre-reflexive mechanisms and folk-psychological reasoning, or can be affected by learning domain-relevant knowledge and skills (Apperly, 2011; Gallagher & Zahavi, 2012; Goldman, 2013; Spunt et al., 2011). Also, individuals experience empathy from the position of themselves and the other and also have pre-learned stereotypes which can affect how they understand other people (Lewis, & Hodges, 2012). The findings of this study support existing theories about empathic understanding particularly in art (Carroll, 2017b; Freedberg & Gallese, 2007; Gernot et al., 2017; Goldman, 2013; Kesner & Horáček, 2017).

### 8.1.6 Becoming conscious of mental contents in graffiti experience

Article VI investigates the kinds of mental contents in graffiti art experience and the dimensions of becoming conscious of mental contents. The reason why experts see things differently than laypeople do not only depends on the processing speed or time used to process information during an appraisal process, but also on the mental content that can be defined as specialized knowledge and skills which the expert possesses and the layperson does not (de Groot, 1964; Ericsson, 2018; Saariluoma, 1995). All people, in this case people with normal vision, perceive the world with somewhat similar perceptual systems. Thus, the perceivable information from the surface of reality that people receive through their eyes and their direct emotions is quite similar for laypeople and experts. However, experts have cumulated information contents that are based on learning and the application of information specific to the graffiti domain, such as sociocultural, technical, and procedural knowledge and skills (Ericsson, 2018). This is non-perceivable information which is stored in and retrieved from memory and that people cannot directly perceive in the conscious experience (Kuuva, 2007; Saariluoma, 1990, 2005).

The mental contents of experts and laypeople can be studied using protocol analysis (Ericsson & Simon, 1993), with a content-based approach (Saariluoma, 1997, 1999, 2001). This approach that authors call "content-based thinking" or content-based cognitive science or psychology, is development from some of the more classical approaches in cognitive science, such as RTM, information processing theory, production systems, schema theories, and 4E cognition. The perceivable and non-perceivable information contents of mental representations are consciously experienced in "seeing" an object, in this case, the selected graffiti stimuli. The rich information content of mental representations includes direct perceptual and emotion attributes and specialized concepts related to learned knowledge and skills, and new insights. Becoming conscious of these information contents can be presented as three different but simultaneously occurring information processing levels in conscious experience. These levels are the immediate level that consists of emotions and perceivable properties, the level where the cognitive and emotional schemas and mental models are

integrated into meaningful mental representations through apperception (Kant, 1781/2009; Saariluoma, 1990, 1995), and the level of restructuring (Saariluoma, 1990) where apperceived mental representations are encoded and reconstructed to new mental representations through deliberate thinking.

## 8.2 Contributions of articles: Mental information contents in the embodied mind in graffiti experience

The experiencing human mind can be understood as the embodied (Articles I–III and V) and the narrative mind (Articles I, III and V). Thus, the experience of graffiti can be understood as a conscious experience of the embodied mind (Articles I–III). As Article I suggests, the embodied mind emphasizes the importance of enactive and embedded cognition, the mind-body as a being that is constituted in its physical and mental constructs, one that experiences and interacts with objects and other people in changing situations and cultures. The conscious mind makes sense of events and experiences and organizes them into narratives. In a conscious experience, the mental information from the physical and social worlds are integrated into a coherent story, along with objects and places, bodily actions, practices, sensations and emotions, symbolic and abstract meanings, culturally learned beliefs and values, concepts and schemas, as well as explanations of identities, reasons, and causes, and expectations of oneself and others, as well as new insights, (Articles IV–VI).

Article II investigates the embodied mind and embodied methodologies. There are several methods for studying embodiment, such as introspective, first-person judgments about the somatosensory experiences of the rubber hand illusion (Lewis & Lloyd, 2010, p. 317), interviews and linguistic, multivocal practices concerning how the presence and contradictions of the female body are present in the speech narratives of subjects (Chadwick, 2017, p. 71), or even edge ethnography with deep involvement and immersion in the subjects' physical and social activities (Miller & Tewksbury, 2010, pp. 488–489). Embodied Design Ideation (EDI) practices, with eight different methods which vary from methods like "material props in context" to "props for embodying temporal form," and "embodying past expressions" to "collaborative somatic inquiries," have been suggested for the research and design of relationships between bodily engagement, material, and context (Wilde et al., 2017, pp. 1–9). Article II also suggests how the concept of the embodied mind could be applied in the research methodology of graffiti and street art.

As argued in Article II, an individual's gender, age, or the overall context can affect that individual's feeling of safety while walking in urban environments (Dymén & Ceccato, 2011, p. 313). However, the positive experience of meeting the psychosocial needs of autonomy and mastery, or the emotion of interest to seek and explore new environments, can affect the individual's experiences and behaviors even more than meeting the basic need for safety would. This also

illustrates that the embodied mind is an intertwined process where an individual's bodily physiology, movements, and senses affect and are effected by thinking, emotions, motivations, and the social and physical environment. As discussed, especially in Articles I, III and V, humans not only have bodies, they also have cognitions, emotions, and motivations, and they can process and express these different dimensions of the mind through their behavior and spoken narratives.

Technological advances can bring forth new opportunities and challenges for experiencing environments. Although it is impossible to accurately predict what the future will be like in ten or 50 years, some speculations can be made. As discussed in Article III, technology is already becoming ubiquitous and virtual. Embodiment can also be studied with new technology and its methods can provide a range of different topics, for example, in neuroscience and neuroaesthetics. For example, virtual reality has been used to create multimodal sensory stimuli for neuroscientific therapeutic experiences and research (Bohil et al., 2011), and neuroscientific methods have been used to study the empirical aesthetics of dance (Christensen & Jola, 2015; Kirsch et al., 2015). Recent developments in immersive technology, such as virtual reality (VR), have turned out to be a fruitful method for researching embodiment as well as gender-specific questions, such as gender differences and similarities (Martens et al., 2018), the effect of gender on negotiation styles and the social backlash therein (van der Lubbe & Bosse, 2017), or even the experience of body ownership and body transfer illusion from male to female (Slater et al., 2010). In VR, people can physically immerse themselves in stories and create their own narratives by embodied cognitive processes (Shin, 2017). As embodied agents, people can experience and interact with their environments, objects, and other people in mental and bodily ways that might not be possible in real life (Martens et al., 2018).

Emotions are a fundamental type of human mental contents. Humans communicate, express, and understand their own and others' emotions verbally, but also in bodily gestures and expressions, and through mental information that can be externalized and embedded in objects, such as graffiti (Articles IV and V). Thus, emotions are experienced subjectively, but they can also be experienced as vicarious emotions, such as empathic understandings of the mental states and mental emotional contents of other minds. When viewing graffiti, experienced emotional episodes are constructed in an evaluative appraisal process, including as sensory-motor and cognitive components. Through emotions, people make sense and create value-laden judgments about the world, including other people and artifacts such as graffiti, in order to guide their interests and behaviors of what things or people to approach and what to avoid (Article IV). Graffiti can evoke many types of emotions with varying themes and intensities, and with positive or negative valence (McAuliffe & Iveson, 2011; Young, 2005, 2017).

An individual passing through a public space might be struck by a surprising sight of graffiti, which can be accompanied by emotions such as pleasure, novelty, and wonder and a feeling of something uncanny (Young, 2014).

This sense of surprise can continue to linger on in a troubling mental state of "enchantment" as an increased experience of wonder (Bennett, 2001), "an experience that halts the spectator's movement through the city, that provokes questions in the midst of the unself-conscious flow from one activity to the other" (Young, 2014, p. 45), partly because graffiti's status as unauthorized works (Hansen, 2017). That state of enchantment can further engage the experiencer in ethical considerations about being subjects in public, urban spaces (Hansen, 2017; Young, 2014). Due to its illicit nature, graffiti is judged differently than art and is often judged as ugly or as vandalism, and is associated with dirt and moral deterioration (Kimvall, 2014; Rowe & Hutton, 2012; Sliwa & Cairns, 2007), and experienced with confusion, irritation, anger, disgust, and outrage, which is sometimes accompanied by aggressive behavior (Young, 2014). However, graffiti can also evoke joy and amusement, pleasure, interest, pride, empowerment, and other positive emotions within its viewers (Halsey & Young, 2006; Young, 2014).

How people emotionally experience graffiti depends on the experiencing individual's mental contents, which include some perceptual information that can be universally felt in certain ways (Dutton, 2009), but it also depends on individual characteristics, associations with the imagined social aspects related to the graffiti, and people's values and stereotypes (Article V). As Pinker (2011) notes, people's often rely on stereotypes when thinking, in which they use some exemplar of a category, or in this case, an example of a graffiti writer that they have stored in their cognitive schema and in their reasoning for what the graffiti writer probably is like, at the same time ignoring alternative versions of what graffiti writers can be like.

An important difference in the contents of conscious experience in graffiti experiences between people is due to their learned concepts, beliefs, and values, such as knowledge and skills related to graffiti styles, cultural and aesthetic norms and styles, and procedural and technical practices, which can differ depending on the graffiti viewer's level of expertise, and which are processed through processes of embodiment and inference-making (Articles IV–VI). When an individual views a technological artifact as a spectator, they can have a special attitude or "stance" (Saariluoma & Jokinen, 2015, p. 22), which can also be expressed in conscious mental contents, but which can differ from the moment of actually using that product. Often, experiences of graffiti are investigated from the graffiti writer's point of view when they are, themselves, producing graffiti. Thus, investigating the experiences of people as spectators gives researchers new approaches for studying mental contents, such as values and emotions, that are different from the contents that are experienced while producing graffiti.

Mental contents consist of several types of contents and knowledge structures, and the contents that are in mental representations depend on several different things. Articles IV, V and VI experimentally investigate what kinds of information contents people have when they experience graffiti. In addition to emotional and empathic contents (Article IV), which are important for one's well-being as well as for understanding the meanings of oneself, other people and the world (Article V), people have cognitive, conceptual contents. Since learning new

things means learning new information, it is argued that this learned information is also visible in the differences of conscious mental contents between laypeople and novices or with those people who have acquired expertise in the graffiti-specific domain through learning. While all people can, in theory, perceive similar things with their normally working vision and other senses, experts and laypeople experience things differently because of their learned conceptual contents (Article VI). Different mental contents also affect the differences in perception and thinking between laypeople and experts. The process of how people see something as something and how they become conscious of that something is constructed in three levels, where direct perceptions and emotions are integrated with mental schemas and concepts, and restructured in thinking into new representations. As presented in Article VI, an approach called *content-based thinking (*or content-based cognitive science or content-based psychology*),* can be used to investigate information contents in mental representations and the process of becoming conscious of that contents.

## 8.3 General discussion

In perceptual experience, when appraising a visual artwork, not only can an individual recognize the work's perceivable properties like shapes or colors, but they can also be able to recognize and associate non-perceivable concepts and categories to the work, such as symbols, its style, the artist, and other abstract concepts (Freeland, 2001; Kuuva, 2007; Saariluoma 1997; Solso, 2003; Zeki, 2009). This "high-level" content and its processing affects what humans perceive or pay attention to, and how individuals estimate, judge, feel, and are motivated. High-level content can impact the low-level representations and the phenomenal content of the experience either directly, or indirectly by reorganizing the phenomenal content through inferred causalities and references (Bayne, 2011). Even though they can play a part in constructing the overall experience, the content and processing of a visual or any other perceptual experience might not be limited to "low-level" or "primitive" qualities of sensorial data, but the process involves the integration of immediate information with conceptual contents in a process of apperception, which is already from the earliest phases of information processing, thereby already creating knowledge-bearing experiences on a microconscious level (Saariluoma, 2012; Zeki, 2001, 2009). As Tye (2011) asserts, the source of contents in conscious experience is not only a some sort of a layer of existential singular contents of primitives in perpetual experience.

Analyzing the data from the experimental studies that were conducted during this thesis's research suggests that, in conscious experience, people have both primitive contents and contents that reflect learned concepts, and those who have learned more domain-specific knowledge and skills, whom can be called graffiti experts, have more non-perceivable contents than laypeople and other

non-graffiti experts. These findings, in turn, suggest that both low-level, primitive, perceivable contents, and high-level or semantic, non-perceivable contents and their properties penetrate individuals' perceptual experiences, and that high-level contents affect how things are perceived when the perceived contents are compared to and assimilated with the existing contents of one's memory, and how the content and processing of this mental information affects the conscious experience.

The process of experiencing something must be examined as a continuously unfolding and evolving process, or "a trajectory through the state space of the brain" (Fekete et al., 2018, p. 6) that brings forth different delayed aspects of a multi-layered experience. A perceptual experience also has abstract properties since "we directly perceive abstract things by means of directly perceiving concrete things" (Prinz, 2006, p. 449). However, when experiencing, people do not just perceive some external sensory inputs and then process that information in a linear and chronological order before matching it with the information in their memories and creating a perceptual experience of it. Instead, what they experience are the perceptions of sensory information as well as emotions in a direct, surface level of experience. Humans also experience contents that contain concepts and conceptual and emotional schemata, possibly with other, non-conceptual contents, which are integrated with the information from apperception, and which form meaningful mental representations. Human individuals also experience contents that become new knowledge when processed in their thinking as mental representations that contain the information from the direct and appraised levels are reconstructed into new mental representations.

Seeing something that one sees when looking at graffiti means that the experience has contents that are somehow sensible and meaningful for the experiencing individual. That content is something that is judged and felt somehow relevant for the experiencing individual and something that is interpreted so that it maintains a sense of stability and continuity for the individual themselves, and about other creatures and events in life, where the experiencing organism is an active, goal-oriented agent. This means both psychological and cognitive stability and physical, spatiotemporal constancy. In order to maintain it, an individual must be able to adapt to the changes in their internal and external environment, think and behave within the limits of their competence, and solve problems within the situations from which they emerge (Dennett, 2017; Newell & Simon, 1972). In experiences, information from external and internal worlds impacts each other from the very beginning of the experience in the experiencer's embodied mind. Brains process external and internal mental information in such a way that they create an experience that makes sense and means something to the experiencing agent (Pinker, 2011), who interacts with other agents, things, and objects. Brains process information to create a sense-making description of the past and the present, to estimate and predict the consequences of an individual's thoughts and actions, as well as those of others

with whom the individual is interacting in that specific context and situation, through the use of mental programs, such as causality and rule-based reasoning.

Why and how information is processed, and what kind of conscious experiences it results in, are based on the innate capabilities, structures, functions, and operations of the individual's brains, although the content of the experience is also affected by the experiencing individual's history, the present moment, their future goals, and any resources that they have, whether internal or external. Experience is also affected by the bodily movements, sensations, and perceptions in places and spaces, which entail meanings about sociocultural practices, norms, and values that have either been learned from others or from the individual's own past experience. For example, Fransberg (2021) explains how the masculine body is understood as the norm in Finnish graffiti culture narratives, but female bodies are almost invisible and pushed to the margins of the graffiti culture. According to Fransberg (2021), as women or feminine individuals engage in embodied participation in graffiti culture, certain type of behaviors and appearances are often apperceived with certain sociocultural expectations, values, and norms in people's minds. In graffiti culture, women and those with feminine characteristics can, in fact, have quite different experiences than their male counterparts (Fransberg, 2021). This is an example of how the mind creates and makes sense of events and experiences in form of narratives that exist both in the individual's mind and within the cultures in which the individual is immersed. As Saariluoma (2012) notes, culture is some a transsubjective phenomenon, but it is a way of experiencing that "can only exist inside minds of individuals" (Saariluoma, 2012, p. 53). As aspects of the embodied, predictive, and narrative mind, these factors affect how people make sense of meanings and what kind of meanings they attach to themselves and others, as well as to objects, situations, and events.

People can also think, experience, and have new ideas without external sensory inputs, as is the case in daydreaming and/or future planning. This fact highlights that, in their embodied minds, people can process and imagine things that can contain information about bodily, sensorimotor information, felt emotions, or objects' perceptual properties without having actual sensory inputs, as a form of reflective thinking that draws from the conceptual and non-conceptual contents of memory. In situations such as imagining, hallucinating, dreaming, planning, and problem-solving, the thinking itself can create the contents of mental representations in conscious experiences. For all people who have normal vision, the earliest visual information from graffiti is pre-processed as representations of the signal's "physical" or "primitive" forms. This causes the activation of specific color or line orientation-related neurons when the sensory signals from the retina's light-sensitive cells reach the specific areas of the brain and cause firing of the corresponding neurons in the brain. Two individuals with different levels of background knowledge about graffiti can both be able to sensorially perceive and report, for example, the object's color as red, a 90 degree-oriented line, or oval shape, and other perceivable properties of that object. Understanding the conscious experience of graffiti as a mental phenomenon

requires considering the biological, but also the cognitive, psychological, and social aspects (Freeland, 2001; Pinker, 2011; Zeki, 2009).

If the focus is shifted to the overall, lived experience instead of a visual perceptual experience, there are individual differences in how graffiti's visual stimuli are perceived. For example, what kind of compositions the shapes form, what draws interest for further inspection, which aspects receive attention, and which do not, etc. Even more differences appear between subjects when these shapes are associated with non-perceivable or conceptual content. Examples of non-perceivable content are aesthetic styles, artistic genres, technical qualities, and how the graffiti artist has mastered the style, technique, and tools. These things emerge in the conscious mental experiences of individuals as information contents in mental representations. They are constructed from the integration of semantic and procedural knowledge and skills in memory, motor and sensory information, emotions, cognitive and emotional schemata, and possibly other kinds of content.

Mental contents can be understood as constructs of different kinds of perceivable or non-perceivable mental representations, which can be felt and thought about in the conscious experience. The amount, quality, and complex relations of these different types of content causes different experiences between laypeople and experts. Research by Kuuva (2007) proposes that art experts use their specific, learned art-related historical and cultural knowledge to interpret artworks and their symbolic meanings, whereas laypeople or novices must rely on other information to make sense and provide meaning to the art work, such as the ostensive or perceivable contents that they can see and recognize in the art. Similarly, Bauer and Schwan (2018) describe how the art experts in their study had contents with more abstract and explicit types of art-specific concepts with higher degrees of interpretation, compared to laypeople whose interpretations were based on surface meanings of the contents. Findings from Jankowski et al.'s (2020) research suggest that experts verbalized more positive emotions than novices, as their aesthetic appreciation can be related to how the artwork matches with some ideal experience, even though the domain affects the emotional and thinking processes more than expertise. This is no surprise, as experiences depend also on the contextual cues that individuals are able to infer from their environments (Chalmers, 2006; Frege, 1948; Pepperell & Ishai, 2015; Siegel, 2016; Zeki, 2009).

The contents of the conscious phenomenal experience of graffiti, including multiple types of content and rich content, can be explained which not only involve some perceivable, primitive sensorial properties of an object, but also abstract, semantic, non-perceivable content. Mental representations that constitute experience are constructed by the perceivable and non-perceivable content, as well as the conceptual and non-conceptual content that a subject possesses, which can also penetrate the perception and impact of what is perceived and inferred. These mental processes result in multiple kinds of more or less complex, rich and fine-grained information contents in mental representations, which can include types of contents from Russellian to Fregean,

from gappy to proto-propositional, and from indexical to centered and answerable content types that are organized in individually unique knowledge structures. The function of these different types of contents is to serve the conscious, experiencing subject as a goal-oriented agent with an embodied mind to interact with the changing world along with its physical objects, and living and social creatures, while ensuring well-being and the pursue of goals, either the subjective goals of an individual or those that are shared with other people. The interaction can happen through embodied practices and artifacts, where different meanings are embedded in and extracted from objects such as graffiti or other works of art. These meanings are shared with other individuals in intersubjective experiences about the world that open possibilities to learn new ways to think, feel, behave, and experience. As Saariluoma (2012) notes, "art creates ways to experience the world," which is constructed of all kinds of physical, social, and mental realities that exist both internally and externally.

A final word should be made about how conscious mental contents in a graffiti experience can be investigated. The approach and methods that have been applied in this thesis are important because they can suggest new possibilities for researchers to investigate, the results of which would be quite difficult to gain using some more traditional approaches or methods that are typical in graffiti and street art research. As is the case in all research, street art and graffiti researchers might not be aware of the possibilities and limitations of different methodological choices. They can ignore research questions which they do not understand, or they can misunderstand or lack knowledge of the research paradigm, and its ontological assumptions. A researcher might also be bound and restricted by their research paradigms which can also limit their assumptions about what kinds of research can be conducted and how.

For example, in graffiti and street art-related discussions there often arises a question about whether, in order to to research graffiti or street art, researchers should, themselves, participate in the (often illegal) activity of producing street art or graffiti. Especially to adequately research and describe the possessed meanings of those who are involved in the subculture of graffiti practices, the researcher first needs to become trusted by the group that they are researching. Only once this has been done, the researcher will also be able to become an "authentic" member of the researched graffiti crew and to access a sort of deeper, hidden "truth" that is "owned" by that subcultural group members. Of course, this is a valid method for collecting certain kinds of data about how people experience graffiti, since people often deliberately or unconsciously try to conceal their mental contents. Furthermore, individuals learn many things by engaging in discourses and practices themselves, but this is not by any means the only way. A researcher does need to be an "insider" to collect valid data, although an "outsider" who is using appropriate research approaches and methods is still able to investigate and analyze those phenomena that are difficult or even impossible to be studied by other approaches. This is possible as long as the researcher possesses an adequate level of knowledge of the domain and its concepts, which can also be acquired by engaging in theoretical discourses.

Street art and graffiti can be studied by using a cognitive semiotic approach where art is understood as a form of polysemiotic communication that is consisted of semantic knowledge and multisensorial perceptions from embodied actions (Stampoulidis, 2016, 2019; Stampoulidis et al., 2019). This approach focuses on the use of metaphors as meaningful signs that are linked to human consciousness and which exist in a semiotic system. This system is a construction of three interactive levels: the cognitive and embodied level that entails universal human knowledge, the sedimented level that refers to indexical and symbolic knowledge, and the situated level that includes the individual's "intentions in a sociopolitical context" (Stampoulidis et al., 2019, p. 15). However, as Stampoulidis et al. (2019) note, how metaphors are interpreted depends not only on some universal understanding, but also on individuals' subjective, situational knowledge and past, personal experiences. This calls out for an approach that understands humans as social and bodily creatures, who have shared knowledge about the world and whose resulting subjective knowledge is based on their individual knowledge. What the study of "semantic information processing explicates clearly is that mental content exists" (Saariluoma, 1997, p. 105). Instead, the content-based approach and content-specific cognitive psychology analyzes the representational mental contents and why and how particular mental representations are organized, due to reasons such as functional constraints and mental models (Saariluoma, 1997). This information content of mental representation, which is construed from phenomenal, conceptual, and other types of information and the investigation of its elements and properties, lays the explanatory groundwork for interpreting and explaining the human mind along with mental processes and behavior, also when experiencing of art and graffiti (Kuuva, 2007; Saariluoma, 1997, 2001, 2012; Saariluoma & Nevala, 2006). Thus, this thesis argues that if researchers wish to study the contents of conscious experience and the human consciousness itself, they must approach it from the perspective of content-based thinking, where mental information content is analyzed and explained not only as semantic information, but as the information content itself.

User psychological thinking assumes that there are psychological aspects that affect the mind and behavior of the individual when they are interacting with technology (Saariluoma, 2004; Saariluoma et al., 2016). These aspects include the human sensory-motor system and one's cognitive capacity. There are also psychological aspects such as perceptual and attention processes and memories, needs, and emotions including motives. The mind and behavior are affected by mental representation contents and thinking that is constituted of appraisal, apperception and reconstruction and restructuring processes, as well as aspects where users are approached as individuals, groups, or cultures (Saariluoma, 2004; Saariluoma et al., 2016). Presumably, all these aspects should, in one way or another, emerge in mental information contents in a conscious experience, either directly in verbal protocols and other forms expressions, or through content-based, heterophenomenological analyses of the protocol data by a researcher.

This leads to the final conclusion of this thesis. The content of conscious experience can be researched by investigating different aspects of the content, such as emotions, empathy, overall contents, and differences between people with different mental contents when they experience something like graffiti. This multidisciplinary, cognitive scientific way of research (Saariluoma, 2012), called content-based cognitive science or content-based psychology, can provide explanations of the underlying mental processes about how these graffiti-related mental representations are constructed and how they emerge in conscious experience. For example, in the appraisal, apperception, and restructuring processes, and overall, this method can generate views to discover essential aspects of mental realities in humans, such as what kind of experiential contents make us humans. By investigating the contents within conscious experience, researchers also have a way to study consciousness, itself.

# 9 CONCLUSIONS

The research in this thesis suggests that graffiti experiences can be understood from the standpoint of the narrative and predicting mind, where thinking, motivations, and actions are reflected against personal and subcultural graffiti narratives and estimations that are constructed from abstract conceptual information. In addition, graffiti experience is also embodied, meaning that people's experiences of graffiti involve performing and understanding bodily movements and actions, since people are interpreting graffiti's perceivable properties as well as the imagined performances, skills, and bodily achievements which they associate with the observed work. The embodied mind not only deals with simulating how the artist moved while creating the work of graffiti, or how an individual, themselves, moves or feels when creating or seeing graffiti, but it also deals with how people associate the bodily activities and created objects with physical places and social interactions. It also deals with how individuals understand not only the perceptual surface level properties, but also the symbolic meanings of these objects, places, and interactions for themselves and other people.

The embodied mind involves the individual's own knowledge of prototypical graffiti, for example graffiti's visual styles and history, as well as knowledge of norms, rules, stereotypes, and expectations set by the surrounding sociocultural world. It involves emotions that are associated with graffiti and considers individuals' own subjective goals, or those of their ingroup which, in turn, stimulate people's interest or disinterest in graffiti. The embodied mind also involves social cognition as understanding the mental contents of the individual's own mind, and of the mind of another individual through empathy. Empathic understanding can happen via embodied and inferring processes, through bodily movements, or through imagined narratives, which can be based on direct simulations or folk-psychological theorizing. Both of these embodied and inferring processes can also be affected by learning, intersubjective experiences, and shared memories.

Learning is an important factor when it comes to the content of experience. Learning can lead to different levels of expertise in graffiti and acquired knowledge and skills which can create different kinds of mental representations and alter the individual experience levels between novices and experts. Sociocultural knowledge about graffiti, such as practices, values, norms, and even ways of thinking, are learned in different ways of social transfer, from learning from others to imitating others. The representational information content in experience emerges in dynamic processes where the perceived information is processed together with non-perceivable information. Because graffiti experts possess greater and different conceptual and non-perceivable information that novices or laypeople, experts can also have different types and amounts of content in their mental representations and thus, different conscious experiences than laypeople. Expertise especially increases the amount, quality, and complexity of non-perceivable contents. This difference, which is due to learning domain-specific concepts that involve graffiti-specific knowledge and skills, can also be found in the differences between the different mental contents of various graffiti spectators which were expressed in their verbal protocols during a conscious experience of graffiti.

The types of contents that people have in their mental representations within their conscious experiences can differ within people, depending on multiple factors including context, expectations, and the physical and social situation to individual characteristics, such as memories, knowledge, interests, attitudes, goals, cognitive and physiological capacities, and so on. Some of the contents can be expressed in speech, facial expressions, gestures, and other physical outputs, although much of the contents are unconscious and difficult or even impossible to bring forth into conscious contemplation. Reasons for this can vary. While it can be possible to verbalize an abstract or intertwined thought or emotion, a person might not possess an adequate concept to describe the content sufficiently, or they can feel that it is not appropriate to say something aloud because it can be against their own values or imagined values of others, among other reasons. However, it is possible to study the contents that people directly express by analyzing these outputs, in this case verbally-expressed protocols, although it requires the researcher to be aware that much of what is said underlies more of that which remains unsaid. Therefore, mental contents must be analyzed in comparison to the existing knowledge about different dimensions of human experience, including theories and models from fields such as cognitive psychology or philosophy of the mind to aesthetics and sociology, or any other field of science that broadens the understanding of the researcher, allowing them to better recognize and explain the mental contents about which people are consciously talking about and referring to in their verbal protocols.

It can be quite difficult for people to think out loud and try to pinpoint, verbally express, and evaluate their conscious mental contents, which is a problem with first-person introspection. Naturally, people are not able to recognize or express their unconscious representational content because that is outside of their conscious reflection, even though unconscious representational

content might surface in conscious experience. However, in their thinking-aloud protocols, people can also express types of content that give hints about their underlying unconscious representational information contents. Overall, to overcome different challenges of phenomenal introspection, a heterophenomenological approach is needed, where subjective, first-person protocols are recorded, coded, and analyzed by a third-person researcher. This way, a researcher is able to find different types of contents in protocols, while maintaining objectivity and reflecting the findings against relevant background theory and models.

When discussing experience, either philosophically or empirically, it is crucial to explain what is meant by experience as a whole, with its phenomenal character–what it feels or is actually like for the subject to have that experience. Explication of the content of an experience demands an interdisciplinary view with the inclusion and fusion of contemporary theories, such as the computational and representational mind, predictive mind, information integration theory, appraisal and apperception process, intersubjectivity and empathy, cognitive penetration and the rich content view, along with many others. This view also includes fields varying from evolutionary and social psychology to neuroscience and sociology into the discussion. Otherwise, the analysis and interpretations would be incomplete. For example, the use of only a neuroscientific approach might answer how a visual or other sensory signal is processed physically and in sense of quantitative information in certain neuronal areas, but it does not answer the question of what a conscious experience is like for the subject as an agent, as an interactive process where mental functions and contents are reflected against different goals and contexts in real life situations.

What is needed is to understand and explicate an experience as a constitution of inseparable components and a result of a complex systems as a whole, as phenomenon that happen in the lived lives of the experiencing creatures. Thus, functional explanations should involve not only biological dimensions, such as the workings and activities of neural, sensory, and motor mechanisms, but also other dimensions involving cognitive, psychological, and social dimensions to create a coherent, more powerful, explanative framework for highly complex phenomena like the consciousness, conscious phenomenal experiences, and the mind.

## 9.1 Limitations and evaluation of the study

This research has paved a way for studying the content of conscious experience from the approach of taking the content as *the content*, where people are "seeing" something as something. An efficient way has been studying this with the heterophenomenological approach, using methods such as thinking-aloud, protocol analysis and applied thematic analysis. However, there are some limitations to this study. Firstly, it is quite clear that the experiment results are

based on a rather small set of experiments with a limited number of participants. It can be argued that this impacts the reliability of the experimental data. However, it can be similarly argued that while this research has been about investigating the information contents, it has, in fact, explicated the foundations of how to investigate what types of contents there are in conscious experience, in what kind of processes that contents emerge, and in what factors can explain what and how consciously experienced mental contents emerge. It is not so much about the generic differences between large groups of graffiti experts or graffiti writers and laypeople, but it is about the difference itself, and how that difference can be described, analyzed, and explained within the selected theoretical framework. Thus, this investigation focuses on describing how conscious experiences of graffiti, or art, or any other objects, could be studied in the first place.

Secondly, it is often argued that in order to study graffiti, a researcher must be immersed in the graffiti world, actively engaging in the graffiti culture and its practices. However, the study of conscious experiences, consciousness, and its processes and mental contents can be done using the heterophenomenological approach, in which the experiencer verbally expresses their experience from the first-person perspective and the researcher analyzes the expressed content of experience from a third-person perspective. Thus, even though the researcher must learn, at least on some rudimentary level, what graffiti is about, and possess knowledge about its sociocultural and procedural norms along with its values and practices in a similar way to that of an art critic, the researcher can draw analytical conclusions regarding the conscious experience without actually producing graffiti themselves.

Of course, this kind of approach leads to additional questions and requirements regarding its ontology and methodology. What is the "rudimentary" level of knowledge? The heterophenomenological approach presumes that the researcher has knowledge not only about graffiti as a performative practice, a postmodern, urban art style, or a culture, with its norms, codes, history, and language, but also knowledge about the theories and models regarding consciousness, mental representations, and information contents. This approach also presumes that the researcher knows how the empirical data can interact with the theoretical background knowledge and how the theory can explain the data as well as the conscious phenomenon that must be abstracted from the data analysis, by comparing and analyzing the existence and absence of protocol data. When studying consciousness and its contents, in addition to the fact that experiences are always subjective and unique, and their contents can vary even within groups of otherwise similar people depending on individual characteristics and the research context, much of the contents are either difficult or impossible to verbally express. These contents can also be consciously concealed from others, such as researchers, and it can be unconscious and hidden from the subjects' own conscious awareness, making it concealed of their own conscious contents, too.

The third major limitation of this research is that thought-aloud verbal expressions are the only source of data to be analyzed. There are many things that might not become apparent or can be under- or overemphasized in both subjects' conscious speech about their thoughts and emotions, and in researchers' coding and analysis of those thinking-aloud protocols.

## 9.2 Future research

This research does not pertain to an individual's brain-level functionality, or which areas of their brain activate, and in what order when experiencing graffiti, nor is this research about psychophysical mechanisms or sensory-perceptual processes, even though, without a doubt, those are very important in explaining how the mind, brain, and consciousness work. They can support and improve theories that are based on research that uses protocol data as its only source of data. Even though this study is about the information contents in people's minds as interactive, goal-oriented agents who dwell in their lifeworlds, it is not about the mental contents' semantic meanings for the individual or what kind of roles these meanings might play in larger societal discourses. Neither is this research about interactions that entail different kinds of abstract, value-laden relations between subjects and objects. Nor is it about the kinds of behavior that individuals can have upon experiencing graffiti, although it is about those thoughts and emotions that are needed to initiate and guide behavior.

What has been the focus of interest in this research are the mental information contents that emerge in participants' consciousness and that are available to their awareness in conscious experiences, and which can be investigated by studying protocols from people with different levels of expertise in graffiti. This can be studied with the selected paradigm of user psychology, using a heterophenomenological approach and content-based thinking, and methods such as protocol analysis and thinking-aloud. This kind of research approach could be used together with neurological and psychophysical research, in semiotics, social and behavioral sciences, and it could provide interesting directions for future research.

With cognitive scientific and user psychological theories and an approach from Human-Technology-Interaction (HTI), explanations can be formed regarding the contents of different mental representations that emerge in conscious experiences when people interact with artifacts such as graffiti, as resulting from activities of underlying mental information processes, such as predictive processes that are based on causal and normative rules, processes about understanding oneself and the other, and processes about evaluating, and creating meaning and new thoughts. These processes and the contents to which they result impact how objects and events are perceived, evaluated, understood, judged, felt, and reacted upon. This view can also help to explain how different people, for example, laypeople and experts, have different experiences in an

otherwise similar situation, such as different emotions, judgments, inferences, and reactions when they encounter graffiti in different spatiotemporal and sociocultural contexts.

This research intends to answer some of the questions concerning the information contents of experience when individuals, as individuals with embodied minds, are experiencing graffiti, but also when individuals are having experiences in which they interact with any kind of product or system that contains perceivable, performative, and sociocultural aspects. Researching the conscious experience of when people look at graffiti and see it as something from the approach provided by cognitive science, human-technology-interaction framework, and from content-based thinking offers a lesser utilized way to study graffiti and street art, but also a way to study art-related experiences, and experiences in general. The results of this research also suggest that there are aspects to experience that could be further considered, not only when researching, but also when designing things, such as systems and products that people are interacting with. As has been argued in this thesis, humans must be understood as representational, embodied minds who interact with other living creatures and inanimate things, who process information that is about their physical and abstract realities by their physical and abstract systems in order to anticipate and achieve different things, but also to maintain stable, sense-making, and meaningful lives.

# YHTEENVETO (SUMMARY IN FINNISH)

## Kehollinen mieli ja mielen sisältö graffitikokemuksessa

Graffitien kokemus voidaan ymmärtää selittämällä se kertovan ja ennakoivan mielen lähtökohdasta, jossa ajattelu, motivaatiot ja toiminnat heijastavat yksilöllisiä ja alakulttuurin abstraktista informaatiosta rakentuvia narratiiveja ja arvioita. Lisäksi graffitien kokemus on kehollista, joka tarkoittaa, että yksilöiden kokemukset graffiteista sisältävät kehon liikkeiden suorittamista ja ymmärtämistä, koska ihmiset tulkitsevat graffitien havaittavia ja kuvitteellisia suorituksia, taitoja ja ruumiillisia saavutuksia, jotka he assosioivat tarkasteltuihin töihin. Kehollinen mieli simuloi sitä, kuinka taiteilija on liikkunut luodessaan graffitityötä, miten yksilö itse liikkuu tai tuntee luodessaan tai katsellessaan graffiteja, sekä miten ihmiset assosioivat keholliset toiminnat ja luodut objektit fyysisiin paikkoihin ja sosiaalisiin vuorovaikutustilanteisiin. Kehollinen mieli myös käsittelee sitä, miten yksilöt ymmärtävät sekä graffitien pintapuoliset havaittavat ominaisuudet, mutta myös näiden objektien, paikkojen ja vuorovaikutusten symboliset merkitykset heille itselleen ja muille ihmisille.

Kehollinen mieli sisältää yksilön oman tietämyksen prototyyppisestä graffitista, esimerkiksi graffitin visuaalisista tyyleistä ja historiasta, sekä myös tietämystä normeista, säännöistä, stereotyypeistä ja odotuksista, joita ympäröivä sosiokulttuurinen maailma asettaa. Kehollisessa mielessä vaikuttavat emootiot, jotka assosioituvat graffiteihin ja yksilön omiin, henkilökohtaisiin tai jonkin oman ryhmän tavoitteisiin, jotka vuorostaan vaikuttavat ihmisten kiinnostukseen graffiteista. Kehollinen mieli sisältää myös sosiaalisen kognition ymmärtämisenä sekä oman että toisen yksilön mielensisältöjä empatian kautta. Empaattinen ymmärtäminen voi tapahtua kehollisten ja päättelevien prosessien kautta, kehon liikkeiden tai kuviteltujen tarinoiden kautta, jotka voivat perustua suoraan simulointiin tai kansanpsykologiseen teoretisointiin. Näihin molempiin, kehölliseen ja päättelevään tulkintaprosessiin, voi vaikuttaa niin oppiminen, yksilöiden väliset kokemukset kuin jaetut muistotkin.

Oppiminen on tärkeä osa kokemuksen sisällön kannalta. Oppiminen voi johtaa eriasteisiin asiantuntijuuden tasoihin ja hankittuun tietämykseen ja kykyihin, jotka voivat luoda erilaisia mentaalisia representaatioita, muuttaen yksilöllisiä kokemuksen tasoja noviisien ja eksperttien välillä. Sosiokulttuurinen tietämys, kuten käytännöt, arvot, normit ja jopa ajattelutavat, siirtyvät sosiaalisesti eteenpäin muilta oppimalla ja imitoimalla muita. Kokemuksen representationaalinen informaatiosisältö ilmaantuu dynaamisessa prosessissa, missä havaittu informaatio prosessoidaan yhdessä ei-havaittavan informaation kanssa. Koska eksperteillä on enemmän ja erilaista konseptuaalista ja ei-havaittavaa informaatiota kuin noviiseilla tai maallikoilla, eksperteillä voi olla myös erityyppisiä ja määriä sisältöä heidän mentaalisissa representaatioissaan ja siten myös erilaisia tietoisia kokemuksia kuin maallikoilla. Asiantuntijuus lisää erityisesti ei-havaittavien sisältöjen määrää, laatua ja monimutkaisuutta. Tämä ero, joka johtuu alakohtaisten konseptien oppimisesta, sisältäen graffitispesifiä tietämystä ja taitoja, voidaan

löytää myös eri graffitikatsojien erilaisten mielen sisältöjen eroissa, jotka katsojat ilmaisivat ääneen ajattelemalla kokiessaan tietoisesti graffiteja.

Erilaiset sisällön tyypit mitä ihmisillä on heidän tietoisesti koetuissa mentaalisissa representaatioissaan voivat vaihdella ihmisten välillä, riippuen monista asioista, kuten asiayhteydestä, odotuksista, ja fyysisistä ja sosiaalisista tilanteista, yksilöllisistä piirteistä, kuten muistoista, tietämyksestä, kiinnostuksen kohteista, asenteista, tavoitteista, kognitiivisesta ja fysiologisesta kapasiteetista, ja niin edelleen. Jotkin näistä sisällöistä voidaan ilmaista puheessa, kasvojen ilmeissä, eleissä, ja muilla fyysisillä tavoilla, vaikkakin iso osa sisällöstä on tiedostamatonta ja niitä on vaikeaa, tai jopa mahdotonta tarkastella tietoisesti. Tämä voi johtua monista syistä. Vaikkakin voi olla mahdollista sanallistaa abstrakteja tai toisiinsa kietoutuneita ajatuksia tai emootioita, henkilöllä ei välttämättä ole sopivia konsepteja kuvaamaan sisältöä riittävän hyvin. Henkilö saattaa esimerkiksi kokea, ettei jonkin asian sanominen ääneen ole soveliasta, koska se saattaa olla omien tai toisten kuvitteellisten arvojen vastaista. On kuitenkin mahdollista tutkia sisältöä, jonka ihmiset ilmaiset suoraan analysoimalla noita ulostuloja, tässä tapauksessa ääneen ja sanallisesti ilmaistuja ajatuksia, vaikkakin se edellyttää, että tutkija on tietoinen siitä, että moni asia, mikä sanotaan ääneen pohjaa vielä suuremmalle osalle sanomatta jäänyttä sisältöä. Sen takia mielen sisältöjä täytyy analysoida vertailemalla niitä olemassa olevaan tietoon ihmisen kokemuksen eri ulottuvuuksista, sisältäen teorioita ja malleja aloilta kuten kognitiivinen psykologia tai mielen filosofia, estetiikka tai sosiologia, tai miltä tahansa tieteen alalta joka voi laajentaa tutkijan ymmärrystä ilmiöstä ja parantaa tutkijan mahdollisuuksia tunnistaa ja selittää paremmin mielen sisältöjä, joista ihmiset tietoisesti puhuvat ja joihin he viittaavat sanallisissa protokolleissaan.

Ihmisille voi olla vaikeaa ajatella ääneen ja yrittää täsmentää, sanallisesti ilmaista, ja arvioida heidän omaa mielensisältöään, mikä on ongelmallista introspektiossa. Ihmiset eivät tietenkään kykene tunnistamaan tai ilmaisemaan tiedostamattomia representationaalisia sisältöjä koska ne ovat tietoisen reflektion ulkopuolella, vaikkakin tiedostamaton representationaalinen sisältö voi tulla esiin tietoisessa kokemuksessa. Ääneen ajatellessaan ihmiset voivat ilmaista myös sen tyyppisiä sisältöjä, jotka antavat vihjeitä niiden tiedostamattomista representationaalisista informaatiosisällöistä. Vastatakseen ylipäätänsä erilaisiin fenomenologisen introspektion haasteisiin, tarvitaan heterofenomenologista lähestymistapaa. Siinä subjektiiviset, ensimmäisen persoonan näkökulmasta annetut protokollat tallennetaan, koodataan ja analysoidaan tutkijan kolmannen-persoonan näkökulmasta. Tällä tavoin tutkijan on mahdollista löytää protokollista erityyppisiä sisältöjä, samalla säilyttäen objektiivisuuden ja peilaten löydöksiä olennaisiin taustateorioihin ja malleihin.

Puhuttaessa kokemuksesta, joko filosofisesti tai empiirisesti, on olennaista selittää mitä kokemus kokonaisuudessa tarkoittaa, sisältäen sen fenomenaalisen luonteen – miltä kokemus subjektista tuntuu tai millaista on itse kokea. Kokemuksen sisällön selittäminen vaatii monitieteistä tarkastelukulmaa, joka sisällyttää ja yhdistää nykyaikaisia malleja, kuten komputationaalisen ja representationaalisen mielen, ennakoivan mielen, informaation integraatioteorian,

arviointi- ja apperseptioprosessit, intersubjektiivisuuden ja empatian, kognitiivisen penetraation ja rikkaan sisällön näkemyksen, monien muiden ohella. Tällainen näkökulma lisää keskusteluun myös aloja evoluutio- ja sosiaalipsykologiasta neurotieteeseen ja sosiologiaan. Muussa tapauksessa analyysit ja tulkinnat jäävät riittämättömiksi. Esimerkiksi pelkästään neurotieteellisen lähestymistavan käyttäminen tutkimuksessa saattaa vastata siihen, miten visuaaliset tai muut aistisignaalit prosessoidaan fyysisesti ja määrällisenä informaationa tietyissä hermoston kortikaalisissa osissa, mutta se ei kykene vastaamaan kysymykseen miltä tietoinen kokemus tuntuu subjektista toimijana, vuorovaikutteisena prosessina, jossa mielen toiminnot ja sisällöt heijastavat erilaisia tavoitteita ja asiayhteyksiä todellisissa arkielämän tilanteissa. Kokemus täytyy ymmärtää ja selittää toisistaan erottamattomien komponenttien kokonaisuutena ja seurauksena kompleksisesta systeemistä kokonaisuutena, ilmiönä, joka tapahtuu kokevien olentojen elävissä elämissä. Toiminnalliset selitykset tulisivat sisältää biologisten ulottuvuuksien, kuten neuraalisten, sensoristen ja motoristen mekanismien toiminnan ja aktivaatioiden lisäksi myös muita ulottuvuuksia, sisältäen kognitiivisen, psykologisen ja sosiaalisen ulottuvuuden jotta voidaan muodostaa yhdenmukainen, selitysvoimaisempi viitekehys sellaisille erittäin monimutkaisille ilmiöille kuten tietoisuus, tietoiset fenomenaaliset kokemukset, ja mieli.

Tämä tutkimus pyrkii vastaamaan joihinkin kokemuksen informaatiosisältöä koskeviin kysymyksiin tilanteissa, kun yksilöt kehollisina mielinä kokevat graffiteja, mutta myös kun yksilöt kokevat ollessaan vuorovaikutuksessa millaisten tahansa havaittavia, suorittavia ja sosiokulttuurisia puolia sisältävien tuotteiden tai systeemien kanssa. Graffitien tarkastelun aikana syntyvän tietoisen kokemuksen ja näkemisen jonkin jonakin tutkiminen kognitiivisen tieteen mahdollistamalla lähestymistavalla, ihmis-teknologia-vuorovaikutuksen viitekehyksessä, sekä sisältöperusteisella ajattelulla tarjoaa vähemmän käytetyn tavan tutkia graffiteja ja katutaidetta. Se tarjoaa myös tavan tutkia taiteeseen liittyviä kokemuksia, ja kokemuksia ylipäätään. Tämän tutkimuksen tulokset myös viittaavat siihen, että on olemassa sellaisia kokemuksen puolia, joita tulisi jatkossa ottaa enemmän huomioon, ei vain tutkittaessa vaan myös suunniteltaessa asioita, kuten systeemejä ja tuotteita, joiden kanssa ihmiset ovat vuorovaikutuksessa. Kuten tässä väitöskirjassa esitetään, ihmiset tulee ymmärtää representationaalisina ja kehollisina mielinä, jotka ovat vuorovaikutuksessa muiden elävien olentojen ja elottomien asioiden kanssa, mielinä, jotka prosessoivat informaatiota koskien heidän fyysisiä ja abstrakteja todellisuuksiaan heidän fyysisillä ja abstrakteilla systeemeillä sekä ennakoidakseen ja saavuttaakseen erilaisia asioita, mutta myös ylläpitääkseen tasaista, järkeenkäypää ja merkityksellistä elämää.

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# ORIGINAL PAPERS

# I

## GRAFFITI AS A PALIMPSEST

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# Graffiti as a Palimpsest

**Mari Myllylä**
University of Jyväskylä, Faculty of Information Technology,
P.O.Box 35 (Agora), FI-40014 University of Jyväskylä, Finland
mari.t.myllyla@student.jyu.fi

**Abstract**
Graffiti can be viewed as stories about embodied identities of the self and others which can be shared in intersubjective discourse, visual communication of varying content and motives, and utilizing specific technology and mediums. Graffiti's palimpestuous nature, in its physical and symbolic forms of layering information, is present in production and perceiving graffiti. A creator and a reader of graffiti are both palimpsesting the work, acting as narrators of their own mental sheets. The concept of graffiti as a palimpsest can be exemplified for example in graffiti art where the interpretation of a work of art depends on the properties of the work, the perceiver and the social and institutional agreements. How graffiti are interpreted is informed by perceiving individuals' characters, such as knowledge and skills, as well as the cultural and sociohistorical context where these individuals are immersed and act.

**Keywords:** Palimpsest, narratives, embodiment, art experience, cultural cognition, cognitive science

## 1. Introduction

We can see the presence of written walls in tandem with drawings and paintings all around the globe (Lewisohn, 2008; Ross, 2016a; Wacławek, 2011). The existence of wall markings stretches from the prehistoric (Nash, 2010) to ancient (Baird and Taylor, 2016) to the contemporary present. Their styles vary from simple, crude scribbles to elaborated versions of refined typography in conjunction with complex pictorial images. In their elementary essence, graffiti can be seen as forms of visual communication (Brighenti, 2010; Wacławek, 2011). They utilize such technology as spray paints and markers, and use different surfaces found in city spaces as their medium (Tolonen, 2016). Graffiti has spread worldwide via magazines, books, photographs, movies, the internet (Ross, 2016a), television and travel, thus enabling the transculturation of graffiti and other urban art images (Valjakka, 2016).

The term graffiti and its different forms were defined as "wild signs" (Oliver and Neal, 2010, p. 1), as visual expression of writers' signatures with a distinct vocabulary (Wacławek, 2011), as special types of writing and picture making of urban journals entailing social and physical practices (Avramidis and Tsilimpoudini, 2017), as "highly nuanced, subtle form of communication" (Young, 2005, pp. 64-65), as ornamental artefacts in a larger architectural canon (Schacter, 2016), and as urban art (Austin, 2010; Valjakka, 2016) or folk art (Ferrell, 2017).

This paper aims to explain how graffiti can be approached as a palimpsest as well as a result of palimpsesting. More specifically this paper focuses on the research questions of how the term and concept of palimpsest can be elaborated and utilized further when explaining production, perceptions and judgements of graffiti. Graffiti as a palimpsest can be studied as both a physical artefact but also as a mental phenomenon and a process, where a person reads, reinterprets and rewrites graffiti, palimpsesting it layer by layer. Analyzing graffiti via the concept of a palimpsest helps discover graffiti's underlaying foils, as well as its externalized output as an overwrite.

The paper starts with the concept of a palimpsest, the act of palimpsesting, and how those are related to graffiti (section 2). An example of graffiti art as a palimpsest is pondered in section 2.1. Next, the discussion will present how graffiti palimpsests can be seen as mental narratives (section 3), then as an embodied palimpsest combining physical and mental actions (section 4). Section 5 concludes that graffiti palimpsests are results of layering physical and

mental content, where graffiti palimpsesting involves both individual, cultural and historical aspects, creating different inferential outputs.

## 2. Graffiti as a palimpsest

The Merriam-Webster Dictionary (n.d.) defines the term palimpsest as a "writing material (such as a parchment or tablet) used one or more times after earlier writing has been erased" or as "something having usually diverse layers or aspects apparent beneath the surface." The Cambridge Dictionary (n.d.) describes palimpsest as "a very old text or document in which writing has been removed and covered or replaced by new writing" and as a "formal something such as a work of art that has many levels of meaning, types of style, etc. that build on each other." In sum, palimpsest can be understood as an overwriting on a cleansed writing surface where previous texts are still partially visible under new writings, where layers beneath its apparent surface create versatile levels of different meanings (Knox, 2012; Lundström, 2007). As Sarah Dillon (2007) explains, palimpsest is also an involuted phenomenon where texts that otherwise do not relate to each other are mixing and elaborately intertwining, interrupting and inhabiting each other as the older text is resurfacing.

Concepts of a palimpsest and palimpsesting can be used to investigate the process and experiential content of creating, perceiving and interpreting different phenomena, such as art. Marie-Sofie Lundström (2007) uses the concept of a palimpsest and the act of palimpsesting to describe how the creation of works of art is influenced by different factors, resulting in layered images of imitations, sketches and fixed details that can be seen as palimpsests, incorporating the past knowledge, experiences and the individual creativity into a novel artistic presentation about a common theme. Lundström (2007) proposes that these works made by artists can be seen as representative souvenirs of both external views and individual experiences where the latter are entailed in the artist's own history and life experiences. By creating a representation of some space and time, the artist also distances the work from its perceiver and brings about something that is not present, something that is alien and strange. This is done by exaggerating an artist's experiences of culture, filtering and presenting that something through her own translation. At the same time the artist creates a story of her own history, her own narrative of meanings (Lundström, 2017).

Sarah Dillon (2007) inspected the usage of the term palimpsest in different contexts. In the palimpsest of a mind, palimpsest is part of several "occurring fantasies" (p. 6), where the writer of a palimpsest returns to the same topic over and over again, thus keeping the theme of her fantasy alive. When palimpsest is connected to a concept of a crypt, a vault under a church, the term combines simultaneous closeness and distance, an allegorical relationship. Palimpsest can be seen as a text that can be used to investigate the relations and differences between reading and writing classical and modern detective stories. It can be used in connection with the concept of intertextuality when the concept is reviewed by using the terms of palimpsest textuality. Palimpsests, just as sexual identities, must be kept constantly rewritten in order to stay vibrant and usable thorough changing times. The charm of a palimpsest is also in its power to exemplify a mystery, resurrection, and the excitement which is born of discovery (Dillon, 2007). It is easy to relate these descriptions to graffiti as reoccurring and repeating name-writing, keeping the phantasy imago of the writer alive and at the same time renewing it via individual creativity; making it close and distant at the same time, translating the cryptical mysteries of the graffiti subculture involuted with individual and shared identities, as graffiti writers exemplify these into visual souvenirs of life.

Creating graffiti as palimpsests, palimpsesting, can happen in a concrete, physical sense of the term as the remains of previous paint and ink stratify between the foils of dirt, detergents, paint strippers, and the peeling off by natural deterioration caused by weathering. All this is covered by overlapping newer drawings, paintings, stickers, posters and flyers. Examples of such physical palimpsests can be found practically in any legal and illegal graffiti writing spots. Writing for example a tag, a throw-up or another piece over an existing graffiti can be seen as palimpsesting. Illustrations of layered graffiti can be found for example in Jonna Tolonen's (2016) visual research about illegal graffiti in Madrid, as well as in Anna Wacławek's (2011) examination of graffiti writers' works and how these are practiced worldwide.

According to Schacter (2008), the erasure of a previous graffiti image can motivate graffiti writers to produce even more images with more innovative and imaginative styles. Hence, this removal and rewriting of graffiti can be seen as a part of a creative palimpsesting process, which itself results in a yet another palimpsest. As the graffiti writers overwrite previous images with their own products, writers create palimpsests

where the underlying surfaces and old, weathered images are entailed and even essential in the creation of a new image (Schacter, 2008). This new layer too will later be covered with yet another image, leaving the previous graffiti echo in the background, either partly visible underneath the new image, in people's memories, or in some cases as a recording such as digital image or a written description.

Graffiti can be seen as physical representations of mental palimpsests which entail their writers' and reader's interpretations of the atmosphere of that area, time and space, reflecting the fluctuating identities of the city and its inhabitants, the zeitgeist of the post-modern era, the culture that the person is immersed in, and the sociocultural knowledge that the person has learned throughout her lifetime. For example, in Finnish graffiti writer / artist Trama's work "Zinku" (Trama, 2008) which can be seen almost as a photorealistic illustration of a building wall where layers of paint and buffing (a slang term for removal of graffiti) with chemical detergents have produced a new kind of visual surface. In EGS's work titled "1985 March 1st" (EGS, 2016) the artist has sprayed black ink over a found, Russian language newspaper to create a novel combination of these elements, a palimpsest of multiple temporal and cultural stories, thus creating new possibilities for different interpretations via visible and invisible layers. The World Atlas of Street Art and Graffiti (Schacter, 2013) lists sites and works of street artists and graffiti writers from all around the world, displaying examples of graffiti palimpsests, from such artists as Ron English (Schacter, 2013, p. 40) and Turbo (Schacter, 2013, pp. 180-181) to sites from Sao Paolo (Schacter, 2013, p. 113) to Berlin (Schacter, 2013, p. 206) and from Barcelona (Schacter, 2013, p. 298) to Tokyo (Schacter, 2013, p. 388). Those illustrations also bring forth the distinctive nature of graffiti palimpsest – works of individuals are conjoined or concurrent deliberately or by chance in the same surface, creating a larger visual totality, a shared palimpsest, that can be read in detail or as a whole.

The idea of understanding graffiti as a palimpsest can be further elaborated by focusing on how the concept of a palimpsest is present in case of graffiti art. In order to define what can be seen as graffiti art palimpsest, however, we must first address briefly what is meant by "graffiti." Typically, graffiti is defined as illegally written or painted, aesthetically stylized words and images of its maker's name as a pseudonym, a tag, using marker pens, spray paint or etching and where the name can be accompanied by a character that often draws its theme from popular culture (Avramidis and Tsilimpoudini, 2017; Ross, 2016b). Depending on the definition though, also stencils and stickers placed on different city surfaces can be counted as graffiti (Tolonen, 2016), although more often these forms along with posters, paste-ups and mix of all the former are categorized as examples of street art, not graffiti (Avramidis and Tsilimpoudini, 2017; Ross, 2016b). In this paper, graffiti may be understood in the stricter sense, but the same idea of a palimpsest can be applied to many forms of street art, as well.

Nowadays there are more and more legal graffiti writing spots available for graffiti writers, for example several in Helsinki, Finland (see for example Supafly, 2018). These legal spots provide places where graffiti writers can focus on developing their technical and artistic skills and expressions. To some, legal spots are seen as stripping off the excitement and almost anarchistic nature of producing graffiti, thus making legal graffiti not "real" graffiti (Ross, 2016a). This notion emphasizes the other side of graffiti; it is also a controversial act (Ross, 2016a) and an ephemeral and embodied performance (Bowen, 2010; 2013; Neef, 2007) which challenges the norms of the society. As graffiti enables activism through and by art it can be called a form of artivism, "a critical process that destabilises everyday urban interactions and practices" (Mekdjian, 2017, p. 1).

Whereas others might see graffiti as aesthetic products and highly developed forms of visual culture and contemporary art, graffiti can also evoke negative feelings such as disgust or repulsion (McAuliffe and Iveson, 2011; Young, 2005, 2017). Due to the illicit nature of graffiti, instead of art it is often judged as vandalism, ugly or associated with dirt and moral deterioration (Kimvall, 2014; Rowe and Hutton, 2012; Sliwa and Cairns, 2007), creating somewhat conflicting but nevertheless coexisting discursive practices (Kimvall, 2014; Sliwa and Cairns, 2007). However, when seeing graffiti as form of artivism, illegality can be seen as essential part of graffiti as an artistic intervention, displaying themes as solidarity as well as empowering the city dwellers (Mekdjian, 2017).

### 1.1 Graffiti art as a palimpsest

As noted earlier, art is a form of palimpsest (Cambridge Dictionary, n.d.), therefore, we can investigate the concept of graffiti palimpsest by taking graffiti art as an example. So, what is graffiti art? Laypeople who are non-experts regarding visual graffiti culture and even art-historians might be familiar

with works of artists such as Keith Haring and Jean-Michel Basquiat (Dempsey, 2003; Kimvall, 2014) or Banksy and Blek le Rat (Merrill, 2015) who could be described more as street artists or graffiti inspired artists (Kimvall, 2014). But the expert inside a subcultural graffiti scene might nominate quite different actors as authentic graffiti artists naming such artists as Taki 183, Seen, Lee, Lady Pink or Blade (Kimvall, 2014). As Jakob Kimvall (2014) notes, the art-historical narratives about graffiti art have so far been quite scarce and often somewhat contradicting. Fortunately, more information is constantly made available with a growing number of publications focusing on explaining graffiti and street art with vast display of artists and art works (see for example Lewisohn, 2008; Schacter, 2013; Wacławek, 2011), events and art exhibitions, academic seminars, conferences and panels and many other kinds of events.

According to Amy Dempsey (2003), contemporary graffiti is part of the postmodern art historical era often directly commenting on societal and political questions (Dempsey, 2003). According to Austin (2010), graffiti art has its roots in the development of modern art from the early 20th century: dadaism, post-dadaism, pop art and pluralistic art forms from the 1970s. In this spirit, graffiti can be seen as collages of visual material from everyday life (Austin, 2010). In turn, those material pieces can be seen as layers beneath the visible surface of a graffiti palimpsest. Juhani Pallasmaa (1996) suggests that postmodern artists have reacted to modernism's alienation and distancing design by trying to create a new connection to it, to confiscate and reclaim estranged architectonic spaces by making them materially present (Pallasmaa, 1996). Also, graffiti artists can be seen criticizing the alienation and estrangement they feel in modern cities, finding new ways of participating in the urban life and reclaiming their environments (Schacter, 2008) as well as creating counteractive responses to aesthetic standards of modernism (Lamazares, 2017).

Not all graffiti should be considered as art, though. It would be better to say that graffiti, at least some of it, can hold the potential to become works of art through intersubjective experiences and current or later discourse, resultant from individual and socially shared palimpsesting. It is a question of shared experiences and social agreement based on both the work's properties, perceivers' personal features and understanding, as well as the sociocultural and historical discourse where a work of art is separated from a mere product.

For example, according to Denis Dutton (2009), humans have universal "art instinct" for making, assessing and experiencing an object and its properties as a work of art. A work of art needs to present, for example, demonstrated technical skills, recognizable styles including novel and surprising elements, and individual expressions. They have to be challenging intellectually, inducing direct pleasure and imaginative, artistic experience wherein intellectual challenges are then solved (Dutton, 2009).

Philosopher John Dewey (2005) saw art experience as a subjective result of interaction with artwork and its perceiver. Sari Kuuva (2007) explains the experience of art as a cognitive apperception process proceeding through restructuring, reflection and construction, generating a mental representation that is colored by our personal experiences, memories, preceding conceptual knowledge and emotions. As Gadamer (1977) saw, art has its own language which can be understood by using hermeneutical reflections, where things are brought to consciousness by self-understanding as well as understanding of history, thus making it possible to take a more objective stance to a person's thinking, comprehend her own prejudices and learn (Gadamer, 1977). Palimpsesting too can be explained as a process of having certain presuppositions that work as a baseline for further decoding of the perceived information. The information is self-reflected and reconstructed in the mind, generating novel reconstructions, which then might add to, alter or overwrite the preceding presumptions. In case of graffiti art, the palimpsest (either physical or mental) including an understanding of graffiti subculture and its norms and artistic language are processed together with an individual's previous information and self-understanding during the palimpsesting. The differences in these can lead to different interpretations and outputs, different kinds of palimpsests.

Martin Heidegger (1996) writes about how in order a work becomes art it requires that the work has been created and has a creator, but it also needs to be fostered by people and the community. This fostering reveals and organizes the truth, *aletheia*, often translated as "the unconcealedness of beings" (Cazeaux, 2011, p. 718) that is born within an ongoing dispute between revealing and hiding of something existing (Heidegger, 1996). In this sense, fostering can be seen as active social palimpsesting that keeps graffiti art alive, unconcealing something relevant to the graffiti subculture and the graffiti art world. Further, fostering

works of art requires knowledge and will to expose oneself to the openness and the truth of the work, allowing people to not only experience the art, but to ”belong in the truth” (Heidegger, 1996, p. 71) that happens in the work of art. Interestingly, the ability to expose oneself to art can be linked to a special personality trait: openness to experience, which according to some psychological research seems to be essential to creativity, positive engagement in arts and aesthetic appreciation, especially in abstract art (Fayn and Silvia, 2015).

In addition, according to Heidegger (1996), expertise in art makes it possible to enjoy and explain even more detailed nuances of a work's character and quality. Findings from neuroaesthetic research support this notion, as the art experience and how art is assessed, judged and felt emotionally has found to be affected also by expertise in the arts and art history, especially in the case of modern, non-representative art (Fayn and Silvia, 2015; Kuuva, 2007; Leder et al., 2004; Pihko et al., 2011). However, experts do not always provide objectively truthful or correct inferences. Expertise can also result in biased judgements, for example due to used heuristics or expert's over-confidence (Kahneman and Klein, 2009; Tversky and Kahneman, 1974). Thus, when discussing graffiti and creating new palimpsested narratives it is important to acknowledge the possibility of bias and to allow critical consideration of alternative explanations and to reveal hidden layers, whether the topic was about art, legality, politics, motivation or other topics.

According to Immanuel Kant (1790/2016), aesthetic judgement related to an artwork is always subjective and only the experience of “beauty” is free from other kinds of judgements. Indeed, art can evoke special emotions such as beauty, pleasantness, interest and surprise, and even negative emotions such as anger and disgust (Fayn and Silvia, 2015). These kinds of emotions are often described in graffiti and street art related discussions too (Dickens, 2008; Halsey & Young, 2008; Taylor, 2012; Young, 2005). However, in contrast to Kant's (1790/2016) proposal that experience of aesthetic beauty is free from learned concepts such as attitudes, Gartus and Leder (2014) suggest that attitudes towards the artistic style can influence how people evaluate graffiti art. Thus, in case of graffiti these layers of beautiful or other art exited thoughts and emotions might be adduced or stay concealed on purpose or unintendingly because of the attitudes of who is doing the palimpsesting.

Context plays an important role in the cognitive and emotional appraisals of art (Brieber et al., 2014; Gartus and Leder, 2014; Gartus et al., 2015; Gerger et al., 2014; Van Dongen et al., 2016). Similarly, in case of graffiti, the context where graffiti is placed can affect the emotional reactions of its perceiver (Gartus and Leder, 2014) and in the recognition of something as graffiti art (Gartus et al., 2015). However, the context alone does not explain what is seen as graffiti art but this seems to depend on the individual's personal interest in graffiti (Gartus et al., 2015). Bloch (2016) emphasizes the importance of location and context in graffiti related assessments because, according to Bloch (2016) especially in case of controversial subcultures “how one frames and narrates their activity and larger role as a participant in a given community changes depending on the location where the story is told” (p. 4). Thus, what is included in a graffiti palimpsest depends heavily on the context.

Culture can be understood as an all penetrating lens through which we interpret our world, think and act (Oyserman, 2017; Richerson and Boyd, 2005). It is information that contains such mentally preserved concepts as thought, knowledge, beliefs, values, skills and attitudes (Richerson and Boyd, 2005). Culture works through a set of psychological mechanisms which guide and affect people's behavior, experiences, inferences and understanding of cross-cultural meanings (Tooby and Cosmides, 2005). The cultural information is transferred by forms of social transformation such as learning and imitating (Richerson and Boyd, 2005; Whiten, 2017), creating something as a “social mind” (Whiten, 2017, p. 148). As graffiti writers share the same surfaces, imitating, altering and renewing the overlying images as part of a social activity in interaction with other writers and the public, the act of palimpsesting can be seen as a shared process where resulting palimpsests are representing both their individual and shared minds of graffiti subculture members, offering for varying, expanding, complementary or conflicting interpretations for both the writers and the perceivers of graffiti.

Art's identity and meaning are gained in socially constructed art traditions, histories and institutions, as in any organized social human practices (Dutton, 2009). What works are categorized and included in graffiti art is not a static concept, but it is continuously negotiated and transformed in an ongoing discourse with individuals, communities and institutes (Kimvall, 2014). The art world, a concept introduced originally by Arthur Danto (1964), means that in order to understand and identify an object as art, the perceiver

must master “an atmosphere of artistic theory, a knowledge of the history of art” (Danto, 1964, p. 580). “Art world” is a construction that revolves around art, but similarly, any other organized interest group could be seen creating their own “worlds,” which could be called for example “graffiti world,” “political world,” “architectonic world,” “information technology world,” “legal world,” and so on. In explaining graffiti, from the perspective of these different worlds, participants from different fields create their own palimpsests based on their apperceptions, fusing cultural beliefs and historical community norms; thereby, investigating graffiti mysteries with their own thinking tools, creating their own explanatory stories which might strengthen and make sense of their own viewpoints and identities. These result in palimpsests, comments that can add to, conflict with or overwrite existing views.

For example, Arroyo Moliner et al. (2015) notes how the content of graffiti discourse depends often on the interests of the stakeholder and can be discussed for example as a threat and safety issue by graffiti prevention authorities, as vandalism by law enforcement and as a tool for communication with youth by social workers. Jakob Kimvall (2014) recognized four approaches to graffiti in Swedish public discourse from early 1970’s to end of the 1990’s: combating, domestication, subcultural and considering approach, displaying even contradictory views towards graffiti between agents with different backgrounds, attitudes and beliefs (Kimvall, 2014). Also, as the case of “The Reichstag Graffiti book” by Chmielewska (2008) illustrates how different agents create their own palimpsests, drawing from different memories and subjective histories which can then change what graffiti represents to each. These notions bring us to the topic of the following section, the nature of graffiti palimpsests as different mental narratives.

### 3. Graffiti as narrative mental palimpsests

Graffiti can be seen as palimpsests that are construed of unique but interrelating visual narratives. Dan McAdams (1988, 2017) has researched the meaning of narratives in human personality psychology. According to McAdams (1988, 2017), people create internal and developing stories of their lives to construct a sense of continuity including “who they were in the past, who they are today, and who they eventually hope to become in the future” (McAdams, 2017, p. 33) to define their identities and give their lives meaning and purpose. Life stories seem to have their characteristic content of agency, including power and achievements, and communion, and a sense of connection to other people which is seen, for example, in love and belonging (McAdams, 1988, 2017). Autonomy, sense of competence accomplished through learned expertise and innate talents, relatedness to others and social contexts are all important for a person’s intrinsic motivation and well-being as universal human needs (Ryan and Deci, 2000; Kaufman and Duckworth, 2015).

Life stories are psychosocial constructions, shifting roles and multiple coexisting narratives that are edited and reinterpreted in interaction with other people. They are building blocks for a person’s identity, autobiographies which develop and change as the individual authors mature, influenced of and in continuity with the evolvement of the surrounding society’s cultural master narratives (McAdams, 2017). Graffiti too can be seen as their producers’ stories, visualized narratives of their travels through life. These narratives are modified and retold as visual palimpsests, where they form layers of their creators’ personality, life experiences and the surrounding society and culture. Graffiti brings forth and strengthens their creators’ as well as their interpreters’ identities, agency and connection to other people as alternating stories in varying contexts, in reflection with their personal experiences and specific contexts, such as graffiti culture. Graffiti writers can see their own works “simultaneously valuable and worthless, art and vandalism, indicative of ownership of the environment and challenging property rights” (Sliwa et al., 2007, p. 80). However, these separate seemingly contradicting narratives can co-exist in graffiti writers’ lives regardless of the tension caused (Hedegaard, 2014; Sliwa et al., 2007) illustrating the ambivalence and complexity of humans’ different life stories (Sliwa et al., 2007).

Arroyo Moliner et al. (2015) and Campos (2012) suggest for many graffiti writers graffiti is a life-style, even an addiction. However, the incentives to do graffiti and participate in graffiti subculture vary. For example, different cultural backgrounds can cause different motivations to do graffiti (Hedegaard, 2014; Valjakka, 2016). Many of those reasons seem to relate to some common, reoccurring themes which can be seen in psychological life narratives (McAdams, 1988, 2017), in self-determination theory (Ryan and Deci, 2000) and in universal characteristics of the art instinct (Dutton, 2009).

Graffiti can play an important role in the development and presence of persons’ individual and collective identity during their lifetimes (Arroyo Moliner et al., 2015; Campos, 2012; Schacter, 2008; Taylor, 2012). Also, peer acknowledgement,

respect, social status and a membership in tribal like communities with peer activities and practices seem to be important factors for graffiti engagement (Arroyo Moliner et al., 2015; Hedegaard, 2014; Malinen, 2011; Rowe and Hutton, 2012; Taylor, 2012; Taylor et al., 2016; Terpstra, 2006; Valle and Weiss, 2010). Writing graffiti can act as a medium for aesthetically creative expression, allowing learning, competitiveness and achievements in personal artistic skills (Arroyo Moliner et al., 2015; Hedegaard, 2014; Rowe and Hutton, 2012; Taylor, 2012; Valle and Weiss, 2010). Graffiti writing can evoke positive emotions such as pleasure, enjoyment and excitement (Arroyo Moliner et al., 2015; Campos, 2012; Rowe and Hutton, 2012; Schachter, 2008). Some graffiti writers see graffiti as a tool to embellish the environment, but only a few seem to be in to it for the sake of danger and to damage something (Rowe and Hutton, 2012). However, even in those cases that might otherwise include high negative risks, the writer's experienced self-determination, intrinsic motivation and experience of flow (Nakamura and Csikszentmihalyi, 2014) might outweigh negative impacts of the often otherwise detrimental activity of producing illicit graffiti (Engeser and Schiepe-Tiska, 2012; Rheinberg, 2008).

Different life narratives can be seen as different layers in a graffiti palimpsest. Graffiti as urban palimpsests (Schacter, 2008; Shep, 2015) can speak "volumes about history, identity, cultural memory, desire, nostalgia, and erasure" (Shep, 2015, p. 209). According to Knox (2012), everyday landscapes carry layers of symbolic meanings. They echo and recreate the core values of their communities and in that way work as important, essential tools for social regulation (Knox, 2012). The creation and omission of graffiti generate temporal, shifting images into these everyday landscapes, communicating meanings as a form of social interaction (Schacter, 2008), at the same time competing with the other visual signage in cities (Shep, 2015). The surface where the image exists or has existed becomes the base layer for the palimpsest, a base for removed and new writings, offering possibilities for not overwriting but also for continuous reinterpretations and experiences for the reader, as new people and communities create new mental palimpsests based on their own stances. As Schacter (2008) stated: "the graffiti walls are […] frequently renovated, as different writers compete and collaborate on the public canvas. In this way the walls can be perceived as a form of ongoing dialogue, a continual artistic discussion and public forum" (Schacter, 2008, p. 48). Thus, these surfaces become sites for negotiating public and private city spaces (Shep, 2015) as well as spaces for learning about others' identities and interactions (Bowen, 2010).

To Pan (2016), palimpsests are also spatial memories which "include architectural visuality, narratives on space, visual images, artistic works, and practices in everyday life" (p. 32). Spatial memories are "simultaneous processes in which the production of memory narratives parallels the production of space in terms of its existence, appearance, use, and function" (Pan, 2016, p. 32). The spatial memory that a graffiti palimpsest can hold can be illustrated with Neef's (2007) story of the Berlin Wall graffiti, where she proposes that despite that physical material might be demolished and the actual piece disappears, the memory of the graffiti can still leave a trace that echoes in the background of people's memories, "taking the shape of new discourses and new 'museum's talks' on the dialectic split of the double exposures of 'in/visibilities'" (Neef, 2007, pp. 430-431). Thus, graffiti palimpsests can be seen as stories that cumulate and affirm the subcultural identities and values of the graffiti writers, as well as alter and renew the physical and mental space where they are located, impacting as artefacts in the present as well as spatial memories from the past.

## 4. Graffiti as embodied palimpsests

Producing graffiti is a physical act, where the movements of body and the content of mind are embodied into a unified, gestural happening, executing a person's agency (Noland, 2009). As Rowe and Hutton (2012) propose: "graffiti is understood by writers as an engaging physical event, something that happens and is corporeal" (Rowe and Hutton, 2012, p. 81). As humans, we move in our environments, handling and altering objects, making plans and decisions by using symbols, receiving information from the world and organizing it to solve problems (MacLachlan, 2004; Nolen-Hoeksema et al., 2009), as enactive beings (Noë, 2004). We use our bodies to anchor ourselves to the world and interact with it, we perceive objects through bodily sensory systems and manipulate those objects by our bodily actions (MacLachlan, 2004). By doing this, we gain a sense of agency, a feeling of being in control of our own bodies and environment, also affecting our bodily self-consciousness (Kannape and Blanke, 2012).

Ferrell (2017) proposes that graffiti are results of performative actions that require planning and aesthetic skills, as well

as, mastering body movements. Graffiti writers' gestural performatives result in rich kinesthetic experience (Noland, 2009). These experiences are enriched further "with the physical challenge of producing complex artistic forms in difficult circumstances" (Rowe and Hutton, 2012, p. 81), provoking such emotions as pleasure and enjoyment (Rowe and Hutton, 2012). In addition to the individual properties of the actor, Noland (2009) suggests that the corporeal performance of writing graffiti embodies culture and its bodily practices, expressing and reinforcing the acculturation through behavior as learned gestures.

As Maurice Merleau-Ponty (2008) noted: "rather than a mind and a body, man is a mind with a body, a being who can only get to the truth of things because its body is, as it were, embedded in those things" (p. 67). Human consciousness and body together create a "mindful body" (MacLachlan, 2004, p. 171) where our mental processes are embodied (Rowlands, 2010). Embodiments of our mental contents and the self can be projected in a person's appearance, communication, gestures or actions or extended also in other objects (MacLachlan, 2004). As noted by Rafael Schachter (2008), the interviewed graffiti writers in his research considered graffiti images "to be a corporeal element of the artist themselves, an objectified and material constituent of their producer" (p. 38). It is those projections of their makers' embodied mental contents that are included in graffiti palimpsests.

Graffiti as an embodied palimpsest involves not only the act of producing graffiti but also perceiving it as an embodied experience. As Tracey Bowen (2010) explains: "Reading graffiti is embodied within the performance of bearing witness to another's existence as well as reading texts that present information through visual codes within the ever-changing contexts where they are found" (p. 85). To understand the bodily performance of others we must be able to reflect it with our own bodily experiences, which in case of graffiti and its specialized physical forms of execution might be challenging to many.

Graffiti are physical artefacts, objects that are perceived by their readers. Objects are seen in terms of what they afford, what is their content and how they can be used (Gibson, 1986; Saariluoma, 2004). Every object is perceived in its context, perceived through a person's previous information and concepts in apperception process, and creating a subjective, meaningful mental representation (Saariluoma, 2004, 2010). However, as Bowen (2010) suggests, graffiti should be understood not just as meaningful images but also as marks of physical performance. Therefore, understanding graffiti also requires physical and haptic exploration from its readers, an embodied experience where readers interact with the artists, works, and cultural communities of artists. For this, readers are using their known conventions, codes, discovery and rethinking as basis of understanding (Bowen, 2010). Thus, palimpsestuous reading of graffiti is both a physical and a mental event, or better to say, an event in a unified entity of the embodied mind.

According to Schacter (2008), graffiti can be seen as internal messages externalized in a physical object, as embodied manifestations of its maker's personhood and agency in images all around the city. These manifestations can be seen as palimpsests which merge the surface with the output of the maker's mental and bodily activities, resulting in a graffiti image with its perceivable and imagined properties. As Brighenti (2010) explains, when graffiti are created by bodily actions in a physical environment, placing one's embodied expressions on surfaces and walls of the cities, they are also creating boundaries and territories. This way graffiti are also ways of mapping oneself to the space and others with visible traces, "interventions that define a type of social interaction at a distance" (Brighenti, 2010, p. 323). These territorial inscriptions are constantly changing, erased and rewritten in rhythmic body-mind actions (Dickens, 2008) creating additional mini-territories (Andron, 2017). In these territories, in their different contexts, graffiti fosters a possibility for creative alterations and confiscation of the city spaces (Dickens, 2008) as people are palimpsesting their environment by the actions of their embodied minds.

## 5. Conclusions

Graffiti can be described as a palimpsest that is built on layers of hidden and revealed physical and mental content. In their physical forms, graffiti palimpsests are layered writings and images on city surfaces, partly or completely overwriting the underlying canvas and its previous images. This way graffiti palimpsest spreads through the different cityscapes, creating territorial, ephemeral, changing images as mysterious souvenirs from their makers. Even after their partly or full disappearance, graffiti and the identities they embody can stay as part of the place's atmosphere in memoirs of both graffiti writers, city dwellers and other spectators.

Graffiti as a palimpsest can be examined also from another,

more philosophical aspect, as a process and a result of mental palimpsesting. This can be illustrated with the examples of creating and assessing graffiti art. Graffiti as mental palimpsests can be seen construed of narrative life stories, self-reflection and rebuilding, resulting into creative outputs where the cumulated information gained during individual and shared life journeys are combined in overwrites reflecting the knowledge, skills, attitudes, beliefs and motives of the palimpsesting individuals. These creative pieces as art can act as interventions in the society and city, thus making graffiti a form of artivism. Further, when the individual palimpsests are conjoined into a network of parallel, sometimes conflicting palimpsests, they can create a socially shared palimpsest, reflecting their cultural master narratives and social agreements. For example, in case of graffiti art, the individual palimpsesting can result in an experience or inference of that work being art, but in the end it is the intersubjective, shared agreement, the shared palimpsest of the sociocultural community that agrees and fosters what is conceived as art in that specific historical time period and context.

Graffiti is also an embodied palimpsest, conjoining the actions of the embodied mind into a participative performance, for both the graffiti producers and graffiti readers. Writing graffiti is a physical act where the bodily movements illustrate the writers' agency, as the writers are materializing their mental manifestations into graffiti works. In turn, perceiving graffiti and being able to read its content require not only knowledge and interest, but also active engagement in its interpretation at a corporeal level. This interaction with the writer and the graffiti image allows an embodied experience in the perceiver of graffiti.

Individual and shared versions of explanations for the truths of the world are discovered and rewritten via physical and mental graffiti palimpsests. Palimpsesting happens in interaction between different actors and agent, combining individual mental and physical properties, as well as, the sociocultural and historical context where the participants are acting. As a result, new layers of information are cumulating over the previous layers via learning, recalling, reconstructing and reforming, but where the past agonists keep influencing to the outcomes in the present. These palimpsest might reveal something from the history, strengthen or challenge the story of the current, and discover new opportunities for the future. Seeing graffiti as physical and mental palimpsests enables new perspectives for understanding incentives and rewards, behaviours and interpretations related to graffiti. It can also help to understand the underlying reasons for how people from different backgrounds, knowledge and context, from graffiti writers, city dwellers, institutions and organisations, but also to researchers and other interest groups, assess graffiti in so different ways.

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# II

# EMBODIED GRAFFITI AND STREET ART RESEARCH

by

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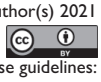

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# Embodied graffiti and street art research

**Malin Fransberg**
Postdoctoral researcher at Tampere University, Finland

**Mari Myllylä**
PhD candidate at University of Jyväskylä, Finland

**Jonna Tolonen**
Postdoctoral researcher at the University of Lapland, Finland

## Abstract

Graffiti and street art research (GSAR) has become more acknowledged within the academic discourse; however, it has much to gain from theorising its methodological aspects. As a multidisciplinary field, GSAR has mostly used qualitative research methods, exploring urban space through methods that range from visual recordings to ethnography, emphasising the researchers' reflexivity. This qualitative approach has, however, paid little attention to the role of embodied practices. In this paper we discuss how embodied methodologies provide multisensory research results where the experienced moments, the participant's and researcher's senses, cognition and mobility in urban spaces are connected. Our discussion draws on the authors' fieldwork experiences of walking and edge working, and on the literature concerning embodiment and embodied methodology related to the context of GSAR.

## Keywords

Graffiti, GSAR, street art, embodied methodology, ethnography, senses, cognition, edgework, walking, gender

## Introduction

Graffiti and street art can be defined as public – and often unauthorised – creative art pieces in urban spaces that are produced by self-motivated individuals or collectives. Researching around this issue is a rather new discipline and scholars from the graffiti and

**Corresponding author:**
Jonna Tolonen D.A. & M.Ed, Postdoctoral researcher at the University of Lapland, Yliopistonkatu 8, Rovaniemi, Lapland 96101, Finland.
Email: jonna.tolonen@gmail.com

street art research (GSAR) arena are part of a diverse interdisciplinary field (see e.g. Avramidis and Tsilimpounidi, 2017; Ross, 2016a; Ross et al., 2017; Zaimakis et al., 2021). The diversity of disciplinary traditions, such as visual studies, sociology, criminology, geography and art history, enriches the research terminology and its methodologies, which should be realised as one of the GSAR fields' strongest contributions. On the other hand, a cross-cutting science challenges the epistemological perspectives in GSAR. As Ross states, the field 'lacks a consistent identifiable body of hypotheses/propositions, theories, and models' (Ross, 2016b: 8). This intriguing multidisciplinary aspect entails graffiti and street art to be researched from several different perspectives and yet it complicates the development of one concurrent research language.

One of the challenges within the interdisciplinary field of graffiti and street art studies could potentially centre around the issue of methodology. There are, however, exceptionally few writings that attempt to contemplate the methodology of GSAR (see e.g. Andron, 2017; Ferrell, 2004; Hansen and Flynn, 2015; Lynn and Lea, 2005; Snyder, 2009). Nevertheless, it is relatively apparent that GSAR's major method is approached through qualitative research, ranging from ethnographies, to in-depth interviews, and to collections of visual data. One way to reflect this robust qualitative dissemination of graffiti and street art practices is to relate them to embodied practices that substructures the cultural artefacts in urban space. In particular, an embodied methodology is useful when the research object is the practitioner in action and in cases where the aim is to study the interaction between embodied practices, visual interaction and urban space.

Embodied methodologies are becoming an established research practice among a wide range of human sciences such as the social sciences, cultural studies and the cognitive sciences. However, it is not constituted as a substantive epistemic field in its own right among disciplines that relate to this methodology (Spatz, 2017). Nevertheless, a wide range of different research methods – such as 'action research', 'artistic research', 'practice research' and 'performance research' – have all been related to what may now be distinguished as embodied methodologies, which emphasises the significance of bodily experiences in a multidisciplinary field. This approach puts the focus on the body as an area of investigation and proposes a specific understanding of knowledge through embodied practices (Spatz, 2017: 6).

While the embodied methodology is not a novel approach in the social sciences and humanities, it has been tenaciously neglected through the mind–body dualism, in which the mind is presenting 'rationality', and the body 'impulsive' and 'irrational passions' (Frank, 1990; Howson and Inglis, 2001; Merleau-Ponty, 1962; Shilling, 2001). In sociological thinking, the 'bringing bodies in' has stressed the transcendence of the mind–body dualism, limiting accounts of embodied or 'carnal' knowledge as crucial for understanding social agency in interaction with social order (Howson and Inglis, 2001). Thus, such as the conceptualisations of 'habitus' by Bourdieu have sought to incorporate fleshly embedded methodologies that recognise reflexivity and bodily actions as ways of knowing (Wacquant, 2014). Similar challenges have been recognised within the cognitive sciences (Gallagher and Zahavi, 2012; Varela et al., 1993), where dualistic thinking has been criticised for reducing cognition and the mind to 'a disembodied computer program' (Gallagher and Zahavi, 2012: 7).

Feminist scholars have been at the forefront of developing embodied methodologies and qualitative enquiries (O'Neill and Roberts, 2020; Young, 1980), and specifically strengthened the criticisms against the dualistic approach of the body–mind set (Howson and Inglis, 2001: 303). It refuses to approach the body merely as a static ensemble of a subject's actions (Butler, 2010), as well emphasised the relevance of embodied experience as crucial in producing scientific knowledge (Sinclair, 2019).

In the field of artistic research, the conception of embodied knowledge is also fairly standard. Mainstream scientific research paradigms are often ill-fitting with artistic and cultural research that deals with studying performances, emotions and tactile or bodily experiences in an urban space. The body, in artistic research, is relevant 'ever-present in any kind of meaning making', and therefore it is natural to 'understand thinking as something we do with our body as much as our brain' (Fentz and McGuirk, 2015: 16–17).

A multidisciplinary field such as GSAR may elaborate some of the aspects regarding methodologies concerning embodiment. This paper puts forward the views and experiences of embodied methodologies from three graffiti and street art researchers with backgrounds in artistic research, sociology and cognitive science. Such a multidisciplinary approach may at times challenge a mutual research angle or shared conceptions. On the other hand, it provides a productive setting in which we can carry out research from a holistic perspective. Thus, we attempt to demonstrate how embodied methodologies can be applied and elaborated into GSAR. Here, embodiment emphasises our understanding of the mind–body as one construct, as a process that experiences and interacts with objects and other people in changing contexts and times (Clark, 2013a; O'Neill and Roberts, 2020; Varela et al., 1993).

Our paper considers the following questions: What can be understood as an embodied methodology in GSAR and what kinds of examples are presented in the current literature? Moreover, we demonstrate how an embodied methodology, can be exemplified further by illustrations of case studies that are drawn from research that ranges from walking (e.g. Ingold, 2007; Pink, 2015) to edge ethnography (e.g. Lyng, 1990). We will begin by distinguishing the embodied and its methodological aspects as a framework for conducting multidisciplinary GSAR. The article continues with methodological examples from the authors' research. First, we take a closer look at how embodied methodologies may be illustrated in walking as a multisensory embodied experience in exploring political street art on foot in Spain (Tolonen, 2021a; 2021b). We analyse Tolonen's research situations and draw reflections on field notes that were maintained over four months of field work between 2017 and 2018. The next section depicts how gender as an embodied practice becomes relevant in ethnographic edgework related to graffiti writing. The section draws on examples from Fransberg's long-term ethnography (2011–2019) in a Finnish male-dominated graffiti subculture (Fransberg, 2021). The article concludes with three findings that are proposed for further GSAR field studies.

## The embodied as a framework

Graffiti and street art practices may be understood as embodied experiences where both scholars and research participants are part of the embodied process, accumulating field-relevant knowledge. Some graffiti and street art researchers have considered how their

creators' agency, identities, cultures, bodies, thoughts and emotions are embodied in artefacts (Hannerz, 2017; Schacter, 2014). Other researchers have emphasised the joint mind–body actions in generating and perceiving graffiti and street art products through embodied experiences (Myllylä, 2018; Halsey and Young, 2006; Nomeikaite, 2017). Bengtsen (2014: 48–53) describes the interplay of verbal and nonverbal communication between a street art researcher and an informant in the different physical and temporal contexts. As Hansen and Flynn (2015) explain, experiencing street art may be understood as an active conversation between the work, the artist and the viewer, where interpretations are made in people's sense-making processes and that are affected by physical contexts as well as viewers' perceptions and values.

To understand human practices and experiences, humans can be studied as intentional and social agents. We interact with the physical and sociocultural world, making sense of information from internal and external environments that are embedded in objects and other agents (De Jaegher and Di Paolo, 2007; Reinhardt and Loke, 2013; Rowlands, 2010). Receiving and processing information assumedly causes bodily sensations, which lead to cognitive and somatic affects (Noland, 2010: 4; Reinhardt and Loke, 2013: 137).

Our experiences and embodied actions are thought to be guided by, for example, thoughts and emotions, past memories and future goals (Gallagher and Zahavi, 2012; Rodaway, 1994). We learn by participating in our culture's practices and sense-making, as we engage in our physical and intersubjective mental realities, coordinating and expressing our actions within the changing life situations (De Jaegher and Di Paolo, 2007; Rodaway, 1994). We may perceive our environments as affordances, as possibilities for our actions by enactive processes (Gibson, 1986; Rowlands, 2010). Through our actions – actions such as altering our environment and its corresponding objects – we extend our embodiment outwards towards artefacts (Reinhardt and Loke, 2013; Rowlands, 2010).

The framework of embodied experiences expounds that we humans are interwoven mind–body entities; 'embodied minds',[1] where our bodies and senses shape our cognition (and vice versa) in thinking, emotions, perceptions, memories, experiences and social interactions, how we are situated and how we behave and move in the world (Gallagher and Zahavi, 2012; Ignatow, 2007; Ingold, 2007; Noland, 2010; O'Neill and Roberts, 2020). Our mental states are expressed, for example, in our physical movements – such as our gestures and bodily expressions (Gallagher and Zahavi, 2012; Ignatow, 2007). According to Noland (2010), intentional or spontaneous gestures can exhibit aesthetic and expressive – among other types of – goals. However, our ability to sense qualitative differences in gestures' meanings in terms of shifting social situations is somewhat of a learned skill (Noland, 2010: 6).

Cultural artefacts and concepts may convey social, symbolic meanings; for example, expressing one's membership within a peer group or identity within a subculture (Macdonald, 2002). Bodies can be perceived as cultural objects, where a person's symbolic identity is distinguished, evaluated and communicated through bodily practices (Hannerz, 2017; Ignatow, 2007; Noland, 2010). Within graffiti and street art, cultural artefacts may embody the creators' individual and culturally idealised forms (Hannerz, 2017).

## Embodied methodology: Setting up the research, expanding the analysis

Embodied methodology emphasises the importance of the physical and socio-temporal contexts and the interactions with all people who are involved in the study. In a research situation, the researcher, participant(s) and the other involved parties are all engaged in intersubjective sense-making performances, leading to the construction of socially shared meanings and embodied experiences (De Jaegher and Di Paolo, 2007; Noland, 2010). When people try to understand each other, they observe and react to their opponents' bodily movements, which in turn may create imagined assumptions about others' experiences and interpersonally shared, similar gestures (Fuchs and De Jaegher, 2009). This kind of intersubjective functioning may enrich the research analysis. For example, Chadwick (2017) has described embodied methodologies as the means to record multivocal practices and how female body presences are demonstrated in speech narratives. Her method primarily focuses on the language used in self-reference, relations to and memorised topics of one's own and others' bodies (Chadwick, 2017).

Embodied methodology has been used also in GSAR. Schacter (2014: 224) reflects: 'It was by action, by subjective involvement (with all the affective qualities these engendered) that one gained embodied knowledge, a knowledge more important than any purely cognitive understanding.' Quotes from Schacter's (2014) field notes describe the environmental context, physical spaces and temporality, bodily gestures and interactions between the informants and the researcher. Such interactions allow to conclude research findings in ways that concern field activities as bodily engaged, a form of social enactment for relationships, communication and commitments (Schacter, 2014: 226–227). Similarly, as Ferrell (2004) notes, methodologies that entail engagement with the research subjects provide an understanding of different cultural nuances and momentary experiences that are related to graffiti.

Nomeikaite (2017) explores the possibilities of researching street art by including observations and verbal explications of the physical interactions and experiences with people and artefacts (Nomeikate, 2017). Halsey and Young (2006) suggest that the act of graffiti writing involves bodily, affective aspects, causing a powerful embodied experience. Graffiti connects their creators to the world, reflecting their subjective, varying relationships through the act of writing graffiti. Thus, for a researcher, the point of GSAR is not only to confirm existing theories, but also to investigate: 'how do various lived bodies conceive of and speak about what they do?' (Halsey and Young, 2006: 294). Ryan (2017: 133) and Tolonen (2021a) have both reported on graffiti writers and street artists gaining remedial benefits from the act of painting, reflecting that 'painting does something' to their bodies and acknowledging the intense physical and emotional sensations that occur during the process of creating.

Graffiti subculture is often described as male-dominated and hence researched through a masculine lens of thought (Fransberg, 2021; Macdonald, 2002). In ethnographic research the researcher is physically involved in the lives of the study participants in the observed field. Gendered bodies often create meanings in these research settings and are crucial in understanding the process of knowledge creation (Naegler and Salman, 2016). Butler (1988: 520) proposes that gender identity is performed

as a 'stylized repetition of acts through time'. It is expressed in bodily signs and other discourses, which construct identities through embodied acts in a social performance (Butler, 1988; 2010).

Gender may therefore influence how the research is conducted. For some researchers, when walking alone in urban environments, a feeling of safety might not necessarily be consistent due to reasons such as their gender, age or the overall context (O'Neill and Roberts, 2019: 51). According to Tay and Diener (2011), the feeling of safety and security can be understood as a fundamental need that people usually intend to fulfil foremost. However, individual psychosocial needs such as feeling respected, being able to master one's field of expertise and having a sense of independence might be pursued before basic or safety needs are fully met (Tay and Diener, 2011). We are also driven by the emotion of interest (Clark, 2013a; Izard, 2009), which according to Izard (2009: 4) is essential 'for engagement in creative and constructive endeavours and for the sense of well-being', also impacting upon one's attention and other mental processes. An individual's prior knowledge and experiences, emotions, values, needs and interests can affect subjective inferences and behaviour (Ignatow, 2007; Ingold, 2007; Saariluoma et al., 2016). This may explain that something such as graffiti, tag or street art may seem deviant or insignificant for one, but it may seem novel, interesting and appealing to the other.

Embodied methodologies can utilise several methods, ranging from first- to third-person perspectives, and from qualitative to quantitative data. For example, Myllylä (in press) uses think aloud method, which is common in user psychology, a scientific discourse of studying people's minds and behavior when they interact with technical artefacts (Saariluoma et al., 2016), to investigate the research participants' embodied experiences of selected graffiti works. Thus, we would argue that different methodologies should be viewed as complementary and not as exclusive or excluding.

In the following sections we will focus on research cases that perceive urban environments through walking and edge ethnography. We illustrate that walking can be a usable means for experiencing and interacting with the environment and is elaborated here upon as an embodied methodology within GSAR (Tolonen, 2021b; Young, 2016). We also present that edge ethnography is a methodology that requires deep involvement and immersion in the physical, social and emotional activities of the subjects, even in the potential risk and ethical issues that are related work to the engagement for both the researcher and the subjects (Ferrell, 1998; Lyng, 1990). With these two cases we provide examples of how embodiment can be depicted and how it can impact upon both research methods and analysis, in this case, in the examination of street art and graffiti.

## Walking as a researcher's embodied experience

Walking has been theorised in many fields of science, for example, in anthropology, geology, philosophy and sociology (see e.g. Ingold, 2007; O'Neill and Roberts, 2019; Pinder, 2008; Pink, 2015). Walking in environments is, in itself, an endeavour that includes experiential, psychological, social, bodily and physical aspects (O'Neill and Roberts, 2019). In GSAR, walking has become an increasingly utilised research method. For example, Phillips (2015), Tolonen (2021a; 2021b) and Young (2016), among many others, have studied and analysed graffiti and street art by walking around cities and

**Figure 1.** Sometimes walking takes a researcher to surprising locations, as happened to Tolonen during her two-month stay in Las Palmas, Spain, where she encountered a multi-layered practising place for beginners. 2018. Photograph @Jonna Tolonen.

photographing artworks. Walking per se has not yet been the main focus of graffiti and street art researchers and yet even the researchers themselves tend to acknowledge its impacts on their perceptions, as Young (2016: 92) here reflects:

> Walking on the street puts you in the midst, able to see textures up close, to walk away, turn and see a work from a distance, to lay your hand upon it and feel the underlying stone through the paper or paint.

Therefore, it can be argued that walking as a multisensory experience is a methodology, as opposed to being simply a research method (see also Pink, 2015), as Tolonen underlines:

> I'm no longer sure if walking for me is just a research method. I see it now more as a bodily and multisensory state of thinking. A state in which, through my movement and observations in the city space, I'm testing the empirical data and theoretical frameworks of street art.[2]

By walking, a graffiti and street art researcher gains an experience of the surroundings of the artwork as well as of the artwork itself. The researcher is able to see artworks from different angles and distances, feel the textures underneath, and sometimes later return to the artwork and observe how the weather conditions or other artists have modified it (see Figure 1).

**Figure 2.** A popular graffiti spot in Madrid, Spain, overpainted by the city's cleaning crew. After taking the photo Tolonen had a chat with the cleaners and one of them told he was 'a painter myself'. 2015. Photograph @Jonna Tolonen.

There might also be moments when the researcher can still smell the freshly sprayed paint, discuss with other passers-by about the feelings the artwork raises or even witness the artwork being painted over (see Figure 2).

Therefore, walking is a series of perceptions, thoughts, emotions and experiences that coincide with graffiti and street art and also with the researchers themselves. Walking requires one being present with all of one's senses. The idea of multi-sensoriality – intertwining one's sight with one's other senses – is a fundamental principle in terms of the researcher's walking experiences. Vision is not understood as a primary sense of the researcher, as the perception of the environment could be characterised as a sensory process where seeing works alongside the other senses.

## Doing graffiti and street art research on foot

Walking is a form of fieldwork on foot and it generally involves perceiving, routing and recording. A researcher observes the ever-changing environment and perceives information from mutually overlapping sounds and olfactory scenery, landscape views and variations in the ground surfaces under his or her feet. During the walk, the researcher can

fall into his or her own thoughts and combine various observations or previous experiences. Therefore, walking can provide for the researcher, as Pink (2015: 55) puts it, access to a 'new form of [sensory] knowing' or as Classen (1993: 9) states, 'thinking through senses'. This can also stimulate unexpected ways of thinking and offer new insights for the researcher, as Tolonen reflects:

> I have never been in this place before. I sense everything of it for the first time in my life: the light, the sounds, the walls, the colours. The odours are peculiar – some kind of mix of sweet, musty and salty. It all feels familiar but yet at the same time somehow different and new. As if all my senses were on extra alert to suck everything in, trying to apprehend this.[3]

Routing can vary from a detailed pre-set walk to anything such as wandering around the city aimlessly. In Ingold's (2007) terms, a researcher can be a passive traveller who is merely transporting from one point to another, or a wayfarer walking through the world without any final destination by integrating her perception, locomotion and knowledge. The researcher's gender can affect routing too. For example, some women researchers might avoid field work during night-time or in vague areas, as Tolonen demonstrates in her field notes: 'I was standing on a crossroads about to enter a narrow alley to photograph, when an old lady yells from the window at me: "Cariño, no vayas allí, es peligroso!" [Darling, don't go there, it's dangerous!]'[4] . As the street continues in so many ways to be 'a place for maleness' (Snyder, 2009: 5), women researchers are perceived as more vulnerable to harassment and violence than male investigators.

While walking, the researcher makes decisions on their routing: 'Shall I take the route I have decided beforehand or should I just wander around the area? Should I turn left instead of right from the next corner?' Even if a graffiti and street art researcher makes up their mind about the walk route in advance, physical conditions (such as weather or geography), biological (such as hydration or stamina) or sudden sensory inputs, in addition to their ability to navigate in space, might change the researcher's plan and result in unexpected moments, as Tolonen highlights:

> My sense of direction has always been really poor, so it was no surprise I got lost today. I found myself wandering in some kind of semi-industrial wasteland, and as I was cursing about wasting my valuable research time by getting lost, I suddenly spotted a piece by artist Art Is Trash on an abandoned pile of metal stuff.[5]

The perceptions and (visual) materials that the researcher gathers during field work reflect many qualities and features of the researcher himself/herself: the researcher's age, gender, body type, cultural background, interests, aesthetic understanding and individual knowledge (Berger, 2015). The most popular way of recording graffiti and street art is photography, along with video recording and writing. Photographs are mainly used to make an argument or to support the researcher's analysis (O'Reilly, 2012). Walking – versus collecting data from archives or the internet – enables the researcher to observe the location and materiality of graffiti and street art, as well as the imagined bodily experiences of their makers (Myllylä, in press) in detail, as Phillips' (2015: 60) description on two stencils illustrates:

> [. . .] stencils are also distinct in the way they are executed. The first [. . .] has an unusual format. Walking around and using such an extraordinary stencil it would be difficult for the user to hide and would attract attention. [. . .] the stencil-maker knows of good visible and suitable locations for spraying, knows material effects of the ground and paint, and has manual abilities to create an accurate and elaborate stencil graffito. In contrast, the second stencil is irregular, uneven and produced with a small stencil easy to conceal.

It is not universal as to how people perceive their environment. It is influenced by social and cultural backgrounds, experiences and memories (Rodaway, 1994: 5). As a consequence, walking cannot be implemented without acknowledging the role of the researcher's own embodied self (O'Reilly, 2012: 100). The researcher's anatomical shape for standing upright and walking defines what the environment can afford for them and also affects their relations to other people and things (Gallagher and Zahavi, 2012: 150–151; Rodaway, 1994: 12). A 19-year-old, 188-centimetre-tall art student who paints graffiti herself senses the streets and its surroundings differently than a 45-year-old 155-centimetre-tall engineer whose passion is science. The researcher learns and knows through his/her whole experiencing body and the research results should be considered as understandings of experiences rather than as objective truths (Pink, 2015: 27, 81).

The value in walking lies in the new levels of awareness about the researchers themselves, their experiences and their embodied knowledge (O'Reilly, 2012: 99). By walking, researchers can get to the phenomena, describe and analyse it. There is no doubt that 'researchers need to have a clear idea of what sensory and embodied experience involves' (Pink, 2015: 26), nor does it automatically offer an understanding of things. Sometimes an embodied methodology may also generate information that is difficult to verbalise, as Chadwick (2017: 58) points out. However, Chadwick's (2017) approach does not take into consideration that research results can be presented as artworks, performances, exhibitions, installations and other artistic practices, instead of or among traditional written scientific reports. This is a common practice, for example in artistic and cultural research (Arlander, 2012; Borgdorff, 2011). Overall, it can be argued that walking can provide multisensory research results that emphasise the experienced moments and connect the researcher's senses, thought processes and environments. Walking is a powerful tool for a graffiti and street art researcher: It can create knowledge that enables new ways of grasping the ephemeral, dynamic and communicative urban environments.

## Embodied experience of the edge

Graffiti and street art are often understood as culturally resistant, rebellious and political acts in urban spaces that tend to escape notions of the normative (Ferrell, 1996; Hansen and Flynn, 2015). In GSAR, embodied methodology is particularly relevant among those scholars who take ethnographic, subcultural or cultural criminologist perspectives into account (see e.g. Ferrell, 1996; Macdonald, 2002; Snyder, 2009). These perspectives aim to grasp the experience of resistance, the 'escape' from social order, and the rebellious styles present in the phenomenology of graffiti and street art. As graffiti and street art are often treated as an illegal endeavour and perceived as a transgression, it may also cause several embodied experiences of risk for its practitioners and its researchers. Some

scholars within the field who abide by an autoethnographic approach have reported the adrenaline rush, fear and excitement that they experience when confronting 'police officers, security guards, huffers (paint sniffers), and various street toughs', as Ferrell (1998: 22) puts it. One perspective that proposes the element of embodiment within these scholarly accounts that are related to deep ethnographic work like Ferrell's (1996) is the methodology of edgework.

Originating in Lyng's (1990) social-psychological work on extreme-leisure activities, edgework analyses the voluntary risk-taking, emotions and sensations that are elicited. Those that are engaged in 'deviant' subcultural practices and enjoy trespassing, breaking a restriction or a moral code, expose themselves 'to high risks and therefore develop skills, or physical and mental abilities, to keep concentration and control in situations characterised by unpredictability and "chaos"' (Naegler and Salman, 2016: 360). The embodied experience of the 'edge' is here explored more specifically in the field of graffiti and street art studies, as it may provide a deeper, cognitive, artistic and sociological understanding of both the individual and of (sub)cultural practices.

Embodied edgework often explores a form of resistance and a type of escape from the prevailing structures of political and economic power (Lyng, 2004). Risk takers, here as graffiti writers and street artists who paint illegally on walls and other objects, often describe the experience of danger as pleasurable and creatively satisfying (Ferrell, 1998; Macdonald, 2002: 107). This practice is constituted around the game, called by some scholars the 'urban warfare' between graffiti writers and the authorities (Macdonald, 2002). At times, this is presented as the motivation for why they paint; that is, to dare oneself towards the edge of one's cultural and social mobility by painting and challenging the aesthetics of the urban space. This experienced edge cannot be performed without the prevailing structures that define an act as illicit or norm breaking. It is these dialectics with the 'edge' that drive forth the embodied experiences of pleasures that are expressed in situations of danger and risk:

> So, it's when I start to run away from cops and guards, that's when I lose my sense of reality. I'll just have one goal, it's just to run! And I don't even realize it, my legs just work. It's like, I have nothing to lose, I will just let my body do what it can in full force. Afterwards, I don't really know what happened, I just realise that I did it again. I ran away from an army of pigs and I'm just laughing, not relieved, but in a psychotic way, full of endorphins.[6]

While O'Neill and Roberts (2020: 131–133) theorise walking also as a form of 'escape' in regards to transgressing a sense of 'how to be', an individual's running proposes a speeding up of the process of performing a re-formed identity through movements in urban space. The excerpt above refers to a study participant's act that she experienced repeatedly during graffiti writing at illegal sites – that is, the running and escape from authoritative control attempting to stop her artistic performing and which is here represented by police officers and security guards. Through detailing this repeated experience, she expresses a powerful sense of her own bodily capacities and recognises mobility as crucial for being able to paint graffiti. Transgressing rules and the conventions of norms leads to a process of what Lyng (2005: 28) expresses as 'moral transcendence', rewarding the experiencer emotionally and sensationally.

Here, as the excerpt above interprets, the experience is embodied through an emotional loss of reality when running and resisting normative rules about how city space should be used. As Naegler and Salman (2016: 361) note, challenging the edge can be approached as means towards exercising control and autonomy by both symbolically and physically confronting those sources that apparently deprive the actor to control over his or her own fate. Here, social interaction is the common medium for the embodiment, where 'the body becomes most conscious of itself when it encounters resistance, which is when it is in use, acting' (Lyng, 2004: 364).

The methodological approach in graffiti research is suggested to be influenced by a masculine lens, especially in studies that take the subcultural and cultural criminologist approach. Edgework has been accused of romanticising masculine performativity through narratives of physical, daring and able male bodies, thus reifying binaries of the active male and the passive female in the field of cultural criminology (Naegler and Salman, 2016: 361). Likewise, graffiti subculture has often been described as male-dominated and as emphasising masculine ideals in its cultural endeavours (Fransberg, 2021; Macdonald, 2002). As such, graffiti is often distinguished as a masculine and aggressive act constituted by risk; whereas in opposition, street art is often understood as being softer, less criminal and feminine (Fransberg, 2021). Naegler and Salman (2016: 362) argue that it is not adequate to do analyses of edgework in gender-neutral ways, as performances of femininity and masculinity in relation to risk are culturally defined. Thus, accepting male risk-taking as part of cultural ideals over masculinity results in viewing female edgeworkers as 'acting like men' or even renders them as an exception from the norm, instead of recognising a diversity within gender theorisation that extends beyond a binary approach (Naegler and Salman, 2016: 363).

Another perspective, which is underlined by feminist scholars conducting field research among predominantly male subcultures, is that bodies performing feminine actions may gain a peculiar positioning as a participant–observant as their embodiment occurs as exceptions within the field. Female researchers' sexual activity has, for example, been subordinated to observation in heteronormative and male-dominated subcultures and this in turn influences the knowledge production in the field (Lumsden, 2009; Poulton, 2012). Yet, there are other embodied aspects that may raise specific subject matters in the field work. In Fransberg's (2021) ethnographic research among male train graffiti writers, she was found to be useful as a photographer for graffiti writers, as her female bodily appearance was not seen as suspicious to the authorities in certain contexts. Fransberg was able, to some extent, pass through surveillance and more easily photograph graffiti-painted trains in train stations because of a more 'feminine' appearance than that of her male informants – males who would perhaps have been chased by security guards.

However, the advantages of her female body have over the years been overexposed, thus resulting in her appearance becoming recognisable to the local authorities, as the next field note discusses:

> Early morning at a train station. I waited for the commuter train to come into the platform, the one I knew was covered by graffiti pieces. I saw the train arriving from a distance, pointed my camera towards it and caught a few photos of it. I was happy as I walked along the platform; the photos were great. Little did I know what was going to happen next. As I walked along the pedestrian path next to the railway, I was suddenly confronted by a police car. 'What are you

> doing here?' they asked. 'Taking photos.' 'Of what?' they replied. 'Of trains,' I answered. 'We have to take you to the police station.' 'Why?' 'You are suspected of vandalism.' I knew I was f*cked. It was not my first time being involved with the police because of studying graffiti. I was taken into a cell and I was even more f*cked because I could not call my boss to tell him that I would not go to work that day.[7]

This ephemerality of graffiti and street art presents some challenges to scholars in the field, as there is often an urgency to document artefacts before they are whitewashed (Ross et al., 2017: 415). Graffiti and street art are often produced in an illegal context, and simply photographing them can become a complex experience of the embodied edgework, as the field note above demonstrates. Bodily acts are therefore part of what could be understood as a cultural reading of certain contextual and social settings that are rarely fixed, but rather compose themselves in the form of a process. This process becomes reproductive through different embodied practices and at times these practices manage to challenge normative beliefs such as those that are related to gender.

Butler (2010) underlines that repeated performances may challenge gender normativities that are related to feminine and masculine embodied practices. Similarly, O'Neill and Roberts (2020: 133) writes that the repetition of walking or other embodied movements in urban space presents 'ourselves to others' and may in return transgress mundane body imagery and normative identity constructs. However, visible embodied repetition constitutes a challenge in the case of illegal graffiti and street art, as passers-by rarely view the actual body in situ, as the actor seeks to hide from the public, partly to avoid sanctions from authorities, and partly due to the subcultural attractions of concealed identity and favouring a distance to the 'mainstream' (Macdonald, 2002). Thus, the possible creators are often constructed through assumptions that are built on normative beliefs; beliefs that are often based upon notions of an able male body and those viewed as normative bodies in the urban realm (Hannerz, 2017). This underlines the importance that researchers place upon the need to document and disseminate the diversity of embodied practices in the GSAR field, and that challenge the binary approach to the feminine and masculine and other body imagery regimes.

## Conclusion

The task of this article has been to look more closely at the ways in which embodied methodologies can be applied to and elaborated on in terms of GSAR. This article analysed both the relevant literature and experiences during the fieldwork carried out by the researchers of graffiti and street art studies. Three specific findings are worth emphasising. The first is that we recommend that researchers should recognise the role of their embodied experience as a part of creating knowledge in GSAR. This posits a versatile understanding of the embodiment, including the researchers' and research participants' understanding of positionality and reflexivity in the researched field. Positionality and reflexivity are already commonly analysed in qualitative research, yet we encourage researchers to include embodiment in the scientific discussions that surround graffiti and street art. Embodied reflexivity may intensify the quality of GSAR by allowing researchers and participants to reflect their ways of sensing experiences and deepen our overall

understanding of an embodiment that recognises cultural and psychosocial beliefs and values. This approach to embodiment entails a holistic view, stressing that neither perceptions nor experiences can be detached from our way of being in the world (Clark, 2013b; Ingold, 2007; Merleau-Pounty, 1962; Pink, 2015, Young, 1980).

The second finding relates to the focus of graffiti and street art studies. GSAR tends to emphasise the refinement of the cultural artefact in urban spaces rather than studying the embodied practices behind the artefact. There may be several reasons for this, one is here postulated as relating to 'disembodiment' (Hannerz, 2017) as bodies which create graffiti and street art in urban environments often perform when hidden from spectators. Therefore, graffiti and street art scholars tend to focus on cultural objects rather than on the bodily acts done in socially and culturally constructed settings. This has resulted in a wider neglection or interpretation of embodied methodologies within graffiti and street art studies. Moreover, a neglection of the embodied methodologies within street art and graffiti studies may lead us to constructing a set of granted body norms, rather than challenging graffiti and street art practices as, for example, inherently masculine acts. Focusing on bodily acts may emphasise our understanding of diverse bodies and dismantle the corresponding dualism such as in the case of masculine–feminine bodies.

The third finding is that by elaborating and clarifying embodied methodologies in graffiti and street art, we are also contemplating the concept of embodied practices. This allows us to draw on perspectives from different disciplines, working on similar topics that are close to each other, thus contributing to the multi-disciplinarity that is typical within the GSAR field. Instead of working within an academic vacuum or drawing on rather narrow perspectives, it may benefit researchers to grasp a more holistic and interdisciplinary approach. As we have noted, similar concepts that are related to embodiment already exist between different disciplines. Different disciplines can all contribute to the refining of what is meant by embodiment, embodied practices and how they are present in graffiti and street art.

This paper brings forth and clarifies some of the conceptions and practical examples that are related to embodied methodology within graffiti and street art-related research. Further discussions on the meaning of embodiment, embodied methodology and practical applications are still needed to provide valuable research tools, as well to explain cognitive, cultural and socially constructed settings. Considering that embodiment in GSAR is a rather complex issue, it is still essential to involve the embodied participation of both the researcher and the participants in differentiating research contexts, as these elements could influence the production of knowledge in the future development of interdisciplinary GSAR.

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## ORCID iD

Jonna Tolonen https://orcid.org/0000-0003-3363-9946

## Notes

1. In this paper we condense the concepts of 'embodied mind' and embodiment into rather brief descriptions, though extensive literature exists regarding these concepts. See, for example, Clark (2013b) for embodiment and cognition, and Scarinzi (2015) for embodied mind in aesthetics.
2. Tolonen's field note, Valencia, December 2017.
3. Tolonen's field note, Valencia, November 2017.
4. Tolonen's field note, Las Palmas, January 2018.
5. Tolonen's field note, Valencia, November 2017.
6. Fransberg's field note with female graffiti writer, June 2018.
7. Fransberg's field note, Helsinki, September 2016.

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## Author biographies

Malin Fransberg is a sociologist and specialises in themes of subcultural theories, gender and cultural criminology. Her ethnographic PhD thesis focused on the criminalisation of graffiti in Helsinki and the affect of zero tolerance policy on the subculture's gender performativities. She is currently studying young people's relationships and perspectives on animals, and its relevance to pro-environmental behaviour.

Mari Myllylä is a cognitive scientist with previous degrees in design and IT business. She is currently finishing her PhD thesis about information content of mental representation in experience of graffiti. Her research interests are in graffiti art experience, representational mental contents and embodied mind. She currently works in the ETAIROS project that studies ethical assessment and design frameworks for Artificial Intelligence (AI) and associated technologies.

Jonna Tolonen is a postdoctoral researcher at the Faculty of Art and Design at the University of Lapland, Finland. She has presented and published widely on gentrification and street art. Jonna is also a member of INDAGUE, the Spanish Association of Researchers of Graffiti and Urban Art. Her current research interests deal with visual culture, socio-environmental justice and artivism. www.streetwalker.fi

# III

# FROM EXPERIENCING SITES OF PAST TO THE FUTURE OF THE DEMOLITION MAN, AND HOW GRAFFITI FITS TO ALL

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# From experiencing sites of past to the future of the Demolition Man, and how graffiti fits to all

**Mari Myllylä**
Mari Myllylä, PhD candidate in Cognitive Science,
Faculty of Information Technology, University of Jyväskylä.
P.O.Box 35 (Agora), FI-40014, University of Jyväskylä, Finland.
Email: mari.t.myllyla@student.jyu.fi

**Abstract**

This paper explores the possibilities graffiti can provide to research user experience, focusing in those that might emerge in urban environments. The concept of User Experience (UX) can be seen as a consciously experienced phenomenon entailing for example biological, psychological and cultural, spatial and temporal aspects. Graffiti can be used as a tool to study experiences and meanings in physical and social places and practices. This can be done by studying direct experiences while completing a task, but also for example by narratives and memories involving graffiti. As the technology develops, it is incorporated in our lives, becoming more adaptive and virtual. This might have a strong impact in our future experiences while engaging with urban systems.

**Keywords:** Graffiti, user experience, spatial experience, memory, interaction research, UX-design

## 1 Introduction: defining User Experience

The term User Experience (UX) is often associated with human-computer-interactions (HCI) and when designing products and services involving computers, smartphones, machines, digital user interfaces and such. Even though there is a lot of buzz around this trendy term “UX”, the concept of user experience still seems to be vague and varying to many. For example, sometimes “experience” is mixed with “perception”. Experience as a word might have alternative meanings in different contexts, as can be seen when experience is referred to a direct and immediate experience (Erlebnis in German) or to the cumulative, earlier based experience (Erfahrung). Typically, UX in HCI refers to the former; as internally felt effects of interaction with a product or a system in the context where it is used in (Hartson and Pyla, 2012), whereas the latter may be more about gained knowledge, memories and life history.

As Saariluoma and Oulasvirta (2010) suggest, user psychology framework can be used outside the field of HCI. The same underlying explanations about how humans interact and experience can be applied for example in researching and designing physical places and urban, built environments. User-centric planning that involves understanding people’s behavior, cognitive processes and what kind of tasks they might face, has been suggested to be implement for example in architectural work, where humans can be seen interacting with artifacts such as buildings (Krukar et. al, 2016). However, in order to be able to discuss about user experience in urban contexts, it is necessary to first clarify how UX can be described.

Saariluoma and Oulasvirta (2010) propose that we humans can be seen as intentional actors, where different sets of activities are driven by different sets of needs and goals. Our subjective experiences emerge in interaction with the material-social-cultural-historical world and technological artifacts (Saariluoma and Oulasvirta, 2010). User experience can be seen as a phenomenal experience that occurs during a same period of time than the underlying mental activities and processes related to that specific event (Edelman and Fekete, 2012). User experience may be seen as cognitive process that is prompted by internal or external stimuli (Dale et. al, 2012). This process which involves perception, thinking, emotions, goals, knowledge, memories, attitudes and believes, and many other psychological and biological factors, may lead to an unique conscious experience including a meaning and a certain feeling. (Revonsuo, 2010; Chalmers, 1996; Dennett, 2002; Carruthers 2000; Saariluoma, 2001; Von Eckard 2012). A conscious experience can be seen as a plastic phenomenon, which is based on the development of individual's skills, sensorimotor practice and cultural learning, reflecting to the dynamic and social interactions in different cultures, contexts and situations (Allen and Williams, 2011). These interactions can further modify both our behavioural patterns and even the functionality and structure of our brains (Han et al., 2013).

An experience is deeply impacted with individual's cognitive functions. For example, shift in attention might change the focus of interest and perception and thus alter the experience (Laarni et al., 2001). This may affect to how a person starts to perceive new environmental affordances and possibilities to act (Noë, 2004; Tversky, 2011; Schnall, 2011). The sense of agency impacts to perception, thinking and experiencing (Noë, 2004; Varela et al., 2016; Joy and Sherry, 2003), also in graffiti (Schacter, 2008). In addition, as humans we are living beings, moving, navigating and interacting in our three-dimensional environments (Schubert and Maass, 2011), converging the sensory information from different senses such as touch, vision, hearing and others, into a supramodal, spatial knowledge (Tversky, 2011). As Bloomer and Moore (1977) propose, the strongest memories of the spatial structures of our three-dimensional environments are born through our bodily experiences. A conscious experience depends also on spatial context, which may further affect to the perception and estimations of space and time, due to both biological and socio-psychological reasons (Schubert and Maass, 2011). These reasons might be for example what kind of bodily, cognitive, emotional and social resources a person has in order to cope and act in any current situation (Schnall, 2011). As Schubert and Maass (2011) propose, spatial and social cognition affect each other and to our thinking about spaces and social realities. These suggestions above might explain for example, if a person is interested in graffiti, she may start to notice new city surfaces as potential places for graffiti, create mental maps of those places where for example physical distances, accessibility, and the social milieus in those places might be felt differently than before or than for other people.

According to Hartson and Pyla (2012), user experience cannot be designed because it is related to the subjective user and to the context of the interaction between the user and the design. However, by using appropriate research frameworks, such as user psychology, we can try to find explanations with enough predictive power about different users and what may impact to their experiences of things and interactions (Saariluoma and Oulasvirta, 2010). We can try to find solutions to those problems that arise from the analysis around events and activities in human life for human beings, by researching "what people do and why they do it" (Beccari and Oliveira, 2011, p.13). This way of thinking also evolves the user centered design to a more holistic view that is used in life-based design, where the focus from analysing mere individual user needs is shifted to a goal of improving the quality of people's lives in different situations (Leikas, 2009).

## 2 Graffiti as a tool of an experience and an anchor to cultural sites

Research in art and aesthetics by using graffiti as a research tool can offer insights to the study of how different users experience life. According to Dewey (2005), art is experienced as a result of interaction between the art work and the experiencer; as a subjective, emotionally impacted experience when reaching a certain goal. Visual art and graffiti both may (or may not) invoke interest, further interpretations and emotions in their perceivers (Myllylä, 2018b). The experience and inferences may

Fig. 1: Urban user experiences can be studied by using graffiti as a tool. This kind of a UX-study was conducted during a Purkutaide-project in 2016 at Kerava, Finland, where this photo is taken (Purkutaide, 2016). Photo: Mari Myllylä, 2016.

change according to the perceiver's knowledge, values and goals, just to mention few. Also, the multisensory sensations that arise during inspecting an artwork may affect to how a person values and experiences art (Joy and Sherry, 2003; Kirk and Freedberg, 2014). Visual art and graffiti are made possible by using technology and tools to produce different kinds of pictures, which can further be seen as not just visual copies of the world, but as tools for putting something that is normally hidden on display (Noë, 2015, 152-161; Heidegger, 1995). Using urban art form such as graffiti as a means to study experience (Myllylä, unpublished raw data; figure 1) creates an intriguing possibility to inspect for example what aspects of individual and social properties are similar or different, how they develop and change and what might explain those and other possible phenomena in contemporary world we live in.

We can interpret graffiti also as a part of a contemporary, urban culture and its built spaces. Graffiti, like other postmodern art, can be interpreted as a way to confiscate and humanize built environments that are made distance and sterile by the modern architecture (Myllylä, 2018a; Pallasmaa, 1996). We can see graffiti as an intervention disrupting and challenging not only physical places but institutions, attitudes, morals and norms about for example legality, democratic participation to the society or art (Dickens, 2008). We can also understand graffiti not as a confrontation, but as a natural, organically developing and spreading communicative, technological and creative practice (Noë, 2015).

Graffiti is externalized in physical world, altering and modifying for example the spatial experience. Graffiti entails artistic and other properties and may create an experience with aesthetic content. An aesthetic experience can be seen emerging as a result of a complex, continuous interaction within perceptual, cognitive and emotional processes, and it underlays not only the perceiver's individual characteristics, such as knowledge, interests

and personality, but also the situation, social discourse and socio-cultural world's expectations, and many other aspects (Leder and Nadal, 2014). According to Noë (2015), to experience art and to be able to perceive different nuances of it, to be able to infer it and to have interest, ideas and emotions about it, requires also to be able to engage with it. This is just like with graffiti. The engagement is easily disrupted, and it requires active efforts from the experiencer to be able to stay interested, find new aspects, meanings and understanding in the work, even baring the occasional dullness and boredom that perceiving art might cause (Noë, 2015). This kind of involuntary boredom can be illustrated for example in study of street art (Bengtsen, 2014).

Context and physical location seem to be some of the key issues when explaining the differences within how people perceive and experience art and graffiti (Bloch, 2016; Chmielewska, 2007; Ferrell and Weide, 2010; Gartus and Leder, 2014; Kirchberg and Tröndle, 2012). Even though graffiti works are by their nature ephemeral, there typically seem to be places where the amount of graffiti artefacts is saturated. According to Ferrell and Weide (2010), these kind of locations provide also moments for social processes and development of both the city and graffiti world in a dynamic relationship (Ferrell and Weide, 2010). As Casey (1993) proposes, we come into places and act in those places usually together, also modifying and reforming the places together, through our shared cultures. At the same time that culture is shaping us. We are all connected to the same continuously changing and renewing spatial and temporal history, where we all create new mental connections to just by moving in those places (Massey, 2005).

According to Wells (2016), within graffiti writers "graffiti" is foremost a culture, a way to participate in the world as a rebel, to conquer public spaces and walls with writers' signatures. Groups from families to cultures are also important for a person's development, behavior and user experience (Matsumoto, 2001). Graffiti works may be seen as connecting the graffiti subculture into concrete places. As Casey (1993) proposes, places are an essential part of culture, they are always connected with a cultural context, and vice-versa a culture has always been linked to a certain place. The cultural connection of a place emerges in the level of an experience, via the agency of the body, expressing the collective community, social interaction, historicalness and politicality (Casey, 1993). Social and spatial practices, differing human activities in different cultural contexts can create varying meanings even for a same physical place (Arnold and Ballantyne, 2004). Because people experience the world in fundamentally different ways between different cultures, it is recommended, that any research related to humans should be done as a cross-cultural study (Pervin, 2003). In case of designing interactions which impact user experience, at least the world view and general knowledge of the end user, context of the usage, and the tasks to be accomplished by the end user should be considered (Blank et al., 2013).

## 3 Spirit of the urban space, spirit of the graffiti

Norberg-Schulz (1980) sees, that a place is formed out of wholes of concrete material things, which together define the essence of that place. A place has its own experienced atmosphere that is construed of different wholes of its parts, that cannot be reduced to its individual properties. The genius loci, the spirit of a place, is defined by the nature of those things that are in that place (Norberg-Schulz, 1980). Instead, Langer (1953) suggests that places are things that are created through people's activities and relationships, illusions of different perception fields and activity patterns, each having their own geographical visual looks. Places are invisible, tangible virtual spaces, where however there are different physical objects. These artefacts are only parts of the whole culture, that opens up and is understood only for the people who know that culture (Langer, 1953). Similarly, because graffiti are artefacts produced by their own subculture, their aesthetic language and symbolic meanings may open up to a person who understands and can read the graffiti subculture often better or at least in different ways than a person who does not possess this knowledge (Bowen, 2010; Gartus et al., 2015).

Graffiti can also be mentally associated to exist in special places or activities, in meaningfully organized mental schemas (Solso, 2003). In a study to investigate graffiti evoked experiences (Myllylä, unpublished raw data), interviewed participants often seemed to imagine visually certain types of prototypical (Solso, 2003) graffiti works into underpass tunnels, on abandoned buildings' walls or on train cars, with speculatively less possible encounters

and interactions both physically and temporally. In other types of graffiti, especially those that participants seemed to evaluate for example more artistic, skilled or interesting, they located to more publicly shared places, such as libraries, sport halls, or even on covers of books; assumably, where ever they seemed to think to be more active site of participation and visibility (Myllylä, unpublished raw data). Presumably, on what kind of sites the graffiti works are mentally located might depend for example of the individual's psychological characteristics, her personal history and interests (Gartus and Leder, 2014), level of expertise and knowledge (Ferrell and Weide, 2010), certain learned graffiti cultural stereotypes (Lombard, 2013) and social norms (Fransberg, 2018), and possible other reasons.

Built environments can be seen as network of public and private places, where people's experiences are born of interaction with physical and imagined spaces; things and everyday practices which affect to our concepts of space and time (Deshpande 2016, p. 321-322; Tversky, 2011). Similarly, graffiti can be encountered in abstract and concrete forms; as physical artefacts or in spoken or written stories. Graffiti writers' works can be seen as a collection of their individual and subcultural meaning-making practices, creating name-tracking networks, which affect both the members of that subculture and anyone who confronts their graffiti (Hanna and Harrison, 2004).

Different narratives exemplify the various and complex ways graffiti can be assessed, judged and engaged with; not only as hegemonic master narratives but also as showcases for ambivalence of individual actors (Sliwa and Cairns, 2007). Ylinen (2018) describes, how graffiti is viewed in two different construction projects' public media narratives, bringing forth certain, occasionally overlapping and partly contradicting themes, which illustrate some typical ways graffiti are assessed and judged. As Ylinen (2018) suggests, these narratives could and should be utilized more in designing better living environments for all users of those spaces.

## 4 Urban experiences in sites of memories

Graffiti can merge into parts of their environments and create a unique experience of place, which would not be the same without those graffiti. Those places become valued and fostered, and they can stay in the memories or recordings of their experiencers long time after the physical place has disappeared. This way those places can become as "sites of memory", places for preserving and honoring practices of histories and meanings of special social groups (Winter, 2010, p. 312). An example of this kind of a special place is the "Pasila Gallery" (figure 2), a noticeable Hall of Fame for Finnish graffiti subculture which attracted painters from all over Finland and abroad.

In this place as a physical, architectural space, originally a large tunnel for cargo trains, there were many elements that fascinated graffiti writers as well as other graffiti interested audience; it was at the same time hidden and in a central location, it was illegal, mysterious, exciting and dangerous, generating a feeling of temptation as described by Hildebrand (1999). Pasila Gallery had its own distinguished character, which according to Norberg-Schulz (1980) is an important aspect of experiencing a place. Pasila Gallery had also its own recognizable identity, which served as a platform for both shared experiences and intentions, reminding other graffiti galleries, but still being unique as its own spatial whole (Relph, 2008).

Since my last visit to Pasila Galleria in 2016, there has been major changes in the Pasila station area, and the Galleria has deceased to exist. With the disappearance of the Pasila Gallery a large part of Finnish graffiti culture's history has disappeared too. The formerly active and often visited place by graffiti writers has now turned into a saved memory, that is shared and put forward in discussions, nostalgic stories and historical documents about graffiti in Helsinki, both by graffiti writers and institutions preserving art and other cultural artefacts (see for example HAM Helsinki Art Museum, 2018). Thus, the lifetime and existence of an original graffiti work can be seen continuing as a physical copy, recording or a memory (Marsh and Hick, 2014; Schacter, 2008; McCormick, 2005).

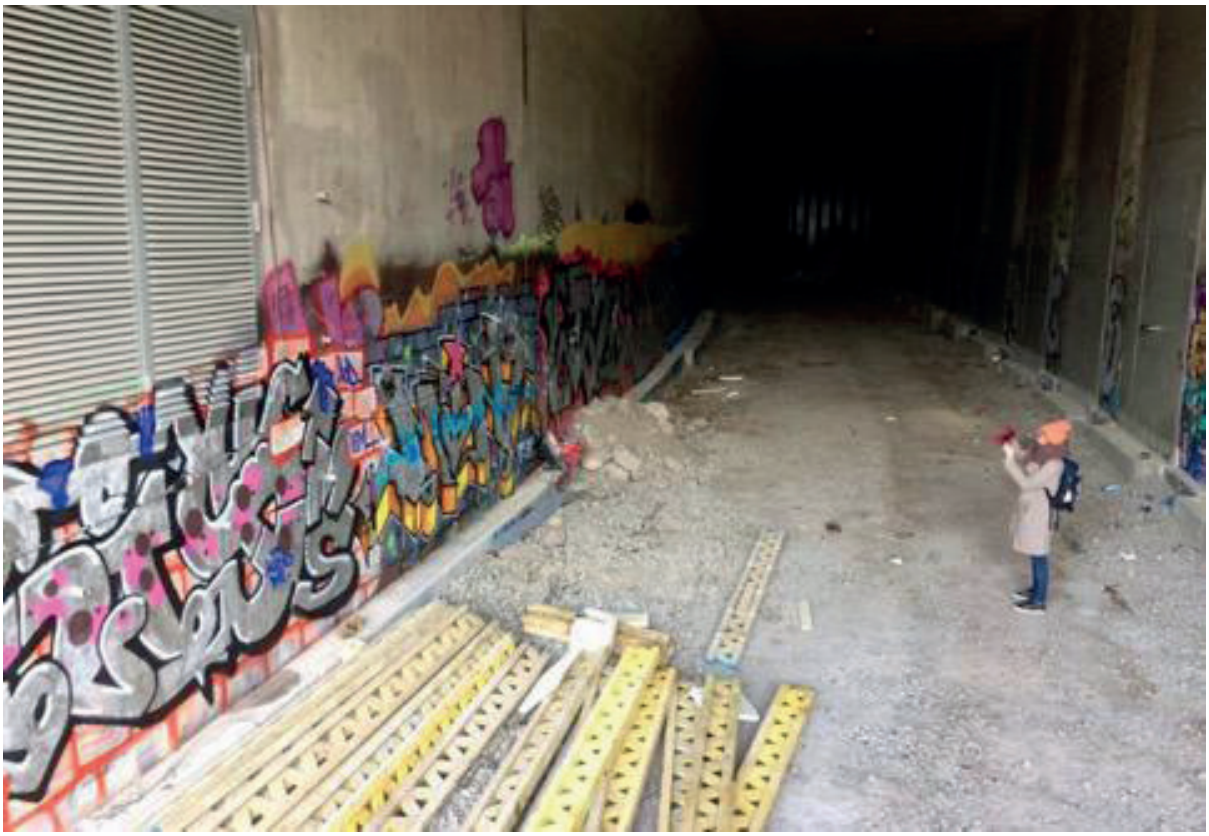

Fig. 2: A researcher is exploring, experiencing and recording Pasila Gallery. Photo: Antti Ojajärvi, 2016.

Memory as a mental phenomenon is not a sort of a permanent recording, but a result of a dynamic, selective, interpretive and integrating process (Foster, 2008). Memory can be seen as a reconstruction of a past, which is affected also by the current moment and the anticipation of the future. To remember something is an interactive event itself. It is affected by individual's worldview, knowledge and expertise, attention and interests, mood, motivation and goals, and memories, in turn, affect to individual's thinking and behavior. Memories change, mix and distort as time goes on, and also much is forgotten. What is recalled later, is often actually a reconstruct of the existing memories, reasoning, suggestions and expectations that a person has at the moment of recalling. This can even lead to false, imagined memories. (Foster, 2008; Sutton et al., 2010.) Also, memory is not to be understood as a simple information storing and retrieving process that happens mechanically in brains. As Sutton et al. (2010, p. 210) put it: "The activities of remembering that matter in everyday life often involve the interaction and coordination of memory-related processes at many different levels and timescales: neural, cognitive, affective, bodily, social, material, and cultural".

For example, even though people seem to appreciate the experience generated by original visual artworks higher than their copies, the memory of that artwork can still keep it existing, even if the original work was destroyed (Marsh and Hick, 2014). Then, Marsh and Hick (2014) speculate further, by recollections of the artwork an art experience might be possible to become a part of a publicly shared experience, even with people who have not perceived the original work themselves (Marsh and Hick, 2014). It is quite easy to see how graffiti can be experienced via

printed or digital copies of shared memories. Whether it was about the subcultural resistance and the collective traumas of zero-tolerance period or the visual styles of early contemporary graffiti, graffiti enthusiastics seem to be immersed in graffiti subculture and recognize its highly appreciated artefacts almost as if they had lived, encountered and experienced those events and objects themselves, instead of learning them from for example discussions, books, internet or other media. Thus, individual's personal memories become compatible and completed with collective memory (Sutton et al., 2010).

**5 Back to the Future with the Demolition Man**

As technology develops, those thoughts that today might seem utopian or even absurd can tomorrow be a part of ordinary everyday life. We can find examples for example from the development of information technology, computers, robots and Artificial Intelligence (AI). Technological development has enabled new information age phenomena and things accessible to all (at least in developed, high-income societies) from social media to selfie-sticks, from movement recognizing game consoles to augmented reality smartphone applications. Even though it is quite impossible to predict the future, it is quite plausible that technological development will change our lives even more drastically or different ways, than we can imagine now.

Remember the clip from a movie "Demolition Man" from the year 1993, where a graffiti automat appeared from the ground and painted a quick political graffiti on a police sign; the piece was immediately erased by an automatic buffing system (electricity?!) that automatically erased the graffiti? Well, what then was the imagined technology in year 2032, is not that far away technology anymore. As we have witnessed, technology has become ubiquitous, invisible but all-present in our environments, interacting and adapting to human behavior and changing environmental conditions.

For example, it has become common to have inbuilt systems and "adaptive architecture" that can automatically manage for example lights, temperature, air-conditioning and access in buildings, and even further, reacting to human behavior via embedded sensors, computers and other technology (Jäger et al., 2016). "Embodied Adaptive Architecture" aim to offer digital environments, which can provide unique and personalized experiences for people via their bodily inputs and interactions from distance, without needing to physically touch the system controls (Jäger et al., 2016). Even though I do not wish that there would be systems such as in the Demolition Man, what would be interesting to see is how adaptive environments could offer for example digital interfaces for creating graffiti and public art for some building users, and something else for others, depending on user requirements.

Virtual Reality (VR) has been used to gaming but also for education and research on experience, for example to investigate gender differences and similarities (Martens et al., 2018), and the experience of body ownership and body transfer illusion (Slater et al., 2010, p. 4-7). It is already possible to create immersive paintings in Virtual Reality (VR), where people can "step inside" the painting in a virtual, three-dimensional space, where the graphical objects such as light or fire can be synchronized with audio sounds and tactile haptics, and the works can be even shared with other artists (Tilt Brush, 2019). Also graffiti production can be simulated in a virtual space in a special VR game, where the player can browse and wander in different virtual locations, either selecting her own spots to write or observe other graffiti writers works in other virtual spots (Kingspray Graffiti, 2018).

This raises an interesting possibility for the future: maybe in the not so distant future graffiti are made, watched and experienced more and more virtually. For purists this might seem an appalling idea, and rather silly science-fiction. However, according to the brief discussions of couple of graffiti writers who have themselves tried out this game, the experience is not that far from the real one. Of course, there are still differences for example in the ergonomics, how the player of the game holds the controller versus how in real life a spray can or a marker pen are held. There are still challenges and shortcomings in creating a fully immersive and realistic experience in VR, as it lacks for example odors - which can be important part of a graffiti writing experience - and inputs and feedback on vestibular-proprioceptive information, causing nausea and disorientation.

But the technology gets more realistic, cheaper, and for example travelling to further locations is probably going

to lessen due to possible restrictions and lifestyle changes required because of the climate change. It starts to seem quite plausible that VR could replace at least some of the physical graffiti production and practices in real life. What kind of effects this would have to the physical appearance or the mental experience of a place in situ can only be speculated.

## 6 Conclusions

As has been noted, urban user experience in graffiti is not only the physical production or perception but it is also a mental and bodily experience, connecting oneself to physical and social world and their meanings. The user experience depends on multiple factors from individuals to groups, from spatial to temporal. Research and design of urban user experiences require considering how aspects from the biological to psychological and social may affect to the experience.

Models from e.g. neuroscience can help us to understand, for example, how the visual and attentional systems may work in biological level, but they do not tell much about the social discourses and bodily interactions that happen in the real world, outside laboratories. Similarly, focusing on just social or cultural explanations of experience can leave out some important findings related to for example psychological development or cognitive mechanisms, which can provide stronger explanations for certain behavior and mental phenomena that are otherwise difficult to explicate. (Freeland, 2002; Noë, 2015; Saariluoma and Oulasvirta, 2010).

When designing common spaces, products, services and systems, it is important that all people who are potential users are considered and involved. For example, living places should be designed to offer comfortable, safe, accessible and adaptive spaces for all members of the community. They should be respecting and preserving both tangible and intangible material, people and cultural-historically valuable items. These include also graffiti, as they may be an essential part of contemporary, urban experiences.

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**Figures:**

Figure 1: Purkutaide-project. Photo by Mari Myllylä, 2016.

Figure 2: Pasila Gallery. Photo by Antti Ojajärvi, 2016.

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# IV

# THE GOOD, THE BAD AND THE UGLY GRAFFITI

by

Mari Myllylä 2020

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# The Good, the Bad and the Ugly Graffiti

**Mari Myllylä**

**Abstract**

Emotions play an essential role in aesthetic and art experience. Graffiti is an example of urban visual communication, and it can also be understood as a form of art. Like other works of art, graffiti can evoke different aesthetic emotions in its audiences, such as pleasure, wonder, interest and pride but also disinterest, disappointment or embarrassment, and even anger and disgust – further impacting, for example, how they value this art form. However, few studies have explored what kinds of emotions people feel when they appraise graffiti. This paper discusses emotions in graffiti using examples from participant interviews in the Purkutaide study. Interview quotes are assessed against theories regarding aesthetic emotions and art appreciation.

There are several challenges associated with studying emotions inspired by graffiti. For instance, explicating emotions verbally is difficult, and the same graffiti work can be interpreted as beautiful or ugly, or good or bad, depending on multiple factors. Appraising graffiti is an interactive and iterative process that depends on both the perceived visual and non-perceivable symbolic features of the work. The sociocultural and physical context, viewing time, subjective motives, the work's relation to the self, the level of learned graffiti-related expertise and other aspects may also influence what kinds of emotions graffiti evokes, and how it is judged in terms of good/bad or beautiful/ugly.

## 1. Introduction

Each individual has his or her own unique mental representations of 'graffiti'. These representations are based on, for example, previous personal histories and life experiences, knowledge, social circumstances, incentives and even physical bodily interactions. Our experiences are often, if not always, coloured by an array of felt emotions that both affect (and are affected by) how we perceive, evaluate and value graffiti.

Possible incentives and typical characteristics of graffiti writers have been the focus of much graffiti-related research. Various meanings of graffiti among the graffiti writers[1] themselves, and the consequences of graffiti for the individual and the surrounding social environment, have been a source of discussion and debate since the emergence of contemporary graffiti in the late 1960s and early 1970s (Avramidis and Tsilimpoudini 2017). However, the emotions that graffiti can elicit, especially among the people who view and experience it, have been largely overlooked.

[1] I am deliberately using the term 'graffiti writer', because in the graffiti vernacular the graffiti production is typically referred as 'writing' and its producers as 'writers', instead of painters or artists.

This chapter discusses the role of emotions in appraising graffiti, based on the preliminary findings of a study that investigated the perceptions, evaluations, thoughts and emotions it evokes. This study was conducted in 2016 during a Purkutaide project (Purkutaide 2019), where an empty building scheduled for demolition, previously used as a business premises, was painted inside and outside with legal and commissioned graffiti and murals. Purkutaide project aims to utilize empty real estates that are in the end of their lifecycles for art and other related activities. This non-profit project started in Kerava in 2016, where 106 different artists created graffiti and mural works covering about 4850 $m^2$ of interior and external surfaces (Purkutaide 2019). I interviewed 19 participants, from laypeople to graffiti writers. I used semi-structured interviews in a thinking-out-loud method to record participants' self-reports while they studied four selected works of graffiti (Figures 1–4) and one mural painting inside the building (this article focuses only on the answers related to graffiti works 1–4).

**Figure 1.** Work 1. Photo by Jouni Väänänen 2016.

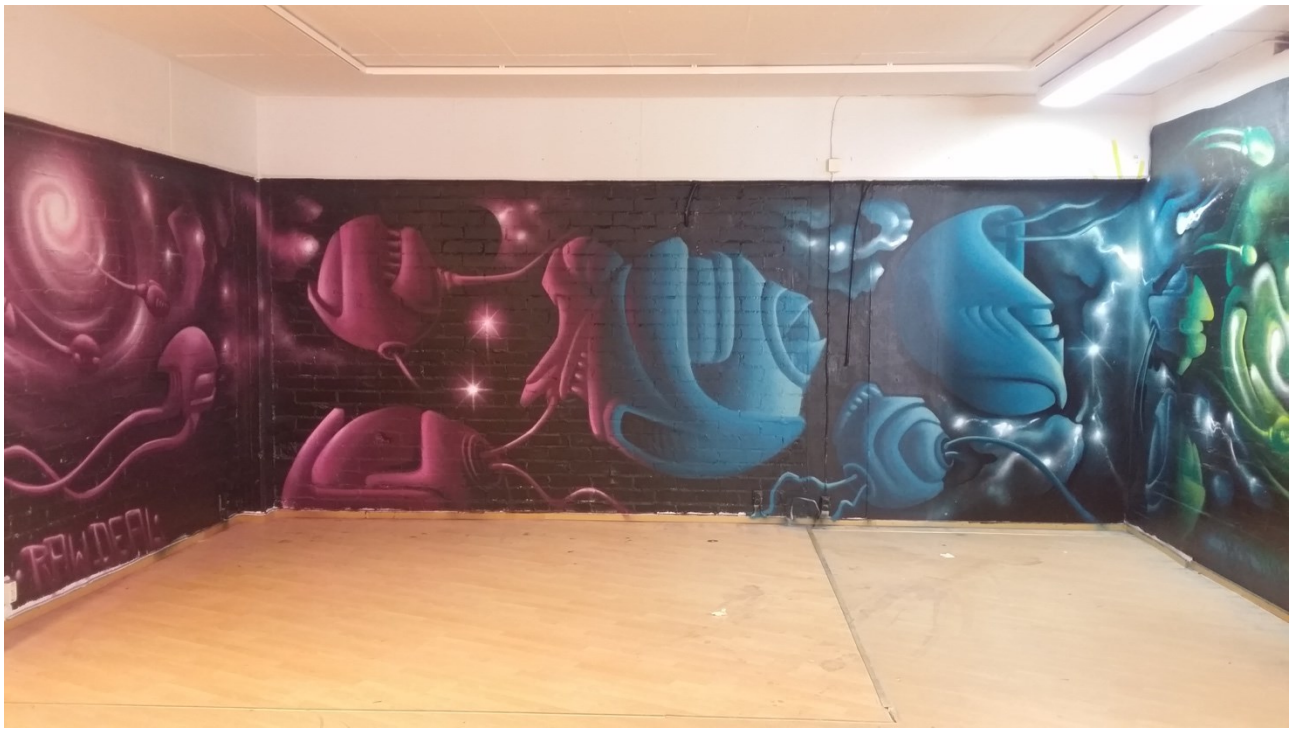


**Figure 2.** Work 2. Photo by Jouni Väänänen 2016.

**Figure 3.** Work 3. Photo by Jouni Väänänen 2016.

**Figure 4.** Work 4. Photo by Jouni Väänänen 2016.

Each work was perceived and assessed by one person at a time, stopping at one work and then the next. One of the questions specifically asked about emotions: 'How do you feel when you look at this work? What kind of feelings does it evoke in you?' Participant comments from that study are used in this article to illustrate examples of possible emotions elicited by selected graffiti (art) works, and how they relate to existing models and suggestions about aesthetic emotions. The term 'aesthetics' can have several meanings, from its broader connotation of 'philosophy of art' to the narrower 'sense perception' or 'sensory cognition' of a subject who is interacting with an artwork (Carroll 1999). It can also be used as an adjective conjoint to a noun, such as 'aesthetic experience' or 'aesthetic attitude', referring to a special contemplative mental state that occurs in response to an object (Carroll 1999). In this article I mainly use the third definition. I translated the participant comments from the original Finnish language to English.

Because of the complexity, difficulty and lack of sufficient research, not all aspects of emotions in graffiti can be reviewed here. For example, I do not discuss the emotions involved in creating graffiti. How graffiti are assessed and appreciated is similar to how artworks are evaluated – i.e., not

only according to their apperceived aesthetic or artistic worth, but based on a multitude of moral and other values, grounded in emotions and emotional responses (Fingerhut and Prinz 2018). Thus, the concept and appraisal of graffiti can (and does) evoke an array of different and even opposite emotions, not only impacting whether it is valued as 'good' or 'bad', but also colouring and further amplifying some deeply personal opinions, judgments, and rational or irrational-seeming behaviour.

# 2. Definitions

The definition of graffiti varies widely depending on the researcher and discourse (see, for example, Ross 2016a). I use the definition provided by Ross (2016b, 476): '[Graffiti] typically refers to words, figures, and images that have been written, drawn and/ or painted on, and/or etched into or on surfaces'. It ranges from tags (simple and quickly written pseudonyms of the graffiti writer) to throw-ups (large sprayed bubble letters) to pieces (expert work with colourful, detailed and complex letters and images).

Tools to produce graffiti can vary from marker pens to spray paint and even fire extinguishers. Graffiti writers also have special aesthetic hand styles (Ross 2016b), which distinguishes their artistic style from other visual outputs and aesthetic genres, such as murals or other forms of urban art. Graffiti is typically done without permission, but in its modern form, sometimes referred as 'post-graffiti', it can also be done legally, transforming it from 'illegal urban action to a legal canvas art' (Ross 2016b, 477).

### *2.1 Graffiti as Communication and Art*

In its elementary essence, graffiti can be considered a form of visual communication (Brighenti 2010; Wacławek 2011; Young 2005). It is also a cultural artefact: products of the graffiti subculture have their own rules, norms, hierarchy system and even language (Campos 2012). Graffiti has been described as urban folk art (Ferrell 2017), urban art (Austin 2010; Valjakka 2016), and a post-modern art form (Dempsey 2003). Art is also a form of communication (Dewey 2005), and artworks can be

seen as ‘communicative devices’ (Seeley 2015, 23), conveying emotional information via signalling codes, classifiers and modifiers to determine the logical–semantic hierarchy of the message, which provides the viewer with reasoning alternatives (Gombrich 1963).

Graffiti is not art *a priori*, though; it can either be art or not. According to Solso (2003, 15): ‘Art is a perception consciously experienced and defined by human beings as aesthetic.’ For something to be considered art, it also needs to be interpreted in as being representational and/ or symbolic (Solso 2003). However, whether a specific graffiti work can be defined as ‘art’ is not only based on the work’s visual features and the perceiver’s personal taste – aspects that humans commonly experience as aesthetic; it also depends on how it is agreed and fostered in its historical, sociocultural discourse, between individuals, groups and institutes (Kimvall 2014; Myllylä 2018). Similar factors that influence whether graffiti is considered or felt as art or not, or as beautiful or ugly or something else, provides an interesting context for investigating emotions in graffiti.

### *2.2 Emotions*

In order to be able to describe what kinds of emotions graffiti can elicit, it is necessary to first clarify what is meant by emotions. Emotions may be understood as temporary mental episodes that are internal states, or unconscious and automatic recursive processes, which are adaptive responses to external events and features and their appraised importance for the organism (Frijda 2008; Moors et al. 2013; Silvia 2005a; Solso 2003). According to a componential view of emotion, emotional episodes consist of five subsystemic components that evolve and provide feedback to each other in conjoint coordination during an emotional episode (Meuleman et al. 2019; Moors et al. 2013). These components include (1) cognitive appraisal, for evaluating a stimulus and interacting with the environment in reflection of their subjective significance; (2) a motivational component, related to behavioural action tendencies and readiness; (3) a somatic or physiological component related to changes in brains and autonomic and peripheral bodily responses; (4) a motor or expression

component for changes in involved behavior and, for instance, facial and vocal expressions; and (5) a subjective feeling component for integrating all the former into a 'gestalt' experience, which may be categorised as or generate a verbal output such as a certain labelled feeling (Meuleman et al. 2019; Moors et al. 2013; Silvia 2009). Baumeister et al. (2007) describes emotion as 'a state of conscious feeling, typically characterized by physiological changes such as arousal' (Baumeister et al. 2007, 168–169). An emotion may be experienced as a single state, but it is often blended with several other emotions and moods, and runs in parallel with several other emotions or emotional episodes (Moors et al. 2013).

The concept of basic emotions frequently emerges in discussions of emotions. According to Izard (2007, 261), basic emotions have 'evolutionarily old neurobiological substrates, […] an evolved feeling component and capacity for expressive and other behavioral actions of evolutionary origin'. Such emotions are prompted quickly, automatically and unconsciously when a person senses or perceives a stimulus that activates evolutionary-based neural and mental processes, leading to stereotypical responses that are each associated with unique feelings. Basic emotions do not require higher-level, complex cognitive appraisals, such as thinking or judgment. However, these emotional responses can change and be regulated as a result of both learning new knowledge and because of the development of a person's information processing and motor activity capabilities (Izard 2007).

There is no agreement on what exactly these basic emotions are. Izard (2007) defines them as 'interest, joy/happiness, sadness, anger, disgust, and fear' (Izard 2007, 261). According to Ekman (1992, 1999), basic emotions include anger, awe, contempt, disgust, embarrassment, excitement, fear, guilt, interest, sadness, shame, surprise, enjoyment (from sensory sources and of accomplishment), amusement, contentment, relief, pride in achievement and satisfaction. Panksepp (2006) sees basic emotions as lust, care, panic, play, fear, rage and seeking.

In contrast to conscious emotions, which 'stimulate reflection and learning' (Baumeister et al. 2007, 170), affect can be defined as an automatic (either conscious or unconscious) response to a

stimulus – a quickly arising and simple feeling of something to be approached or avoided, liked or disliked. It is a less intense feeling than emotion, and it might not be linked to a physiological arousal. Parallel affects can arise out of perceiving something and associating it as good or bad; they are thus simple reactions (Baumeister et al. 2007). Clore and Ortony (2008, 629) view emotions as 'cognitively elaborated affective states' that include multiple representations of something being good or bad at the same time. Whether conscious emotions and affects are the same or separate phenomena, they have a deep impact on a person's further cognising, bodily functions and behaviour, as they direct interactions involving, for example, perception and attention, judgements, values, learning, memory, goals, motivational priorities, categorisation and conceptual frameworks, physiological reactions, communication processes, estimates and situational assessments (Tooby and Cosmides 2008).

Our minds and bodies work together and affect each other: an emotional experience can be moulded by the individual's biological state, such as fatigue or hunger, as well as unique features of an individual's perceptual systems such as vision or hearing, attention and its limitations, gender, age and perhaps even (emotional) intelligence, and many other reasons. Evaluations can also be affected by the real or imagined presence of others and physical and mental interactions, which include the viewer's own body and its movements, perceived objects and events, and other people. As Colombetti (2010) notes, assessments and appraisals arise in a situated organism in a specific bodily state of arousal. Making sense of events can be seen as embodied, cognitive–emotional understanding (Colombetti 2010).

### *2.3 Emotions and Appraisal*

Clore and Ortony (2008) suggest that emotions are implicitly about something being good or bad, and they need to be evaluated somehow. Appraisal theories explain the emergence of emotions as a process, in which initial affective reactions are constructed into emotions in an iterative and recursive

appraisal process (Clore and Ortony 2008; Cunningham and Zelazo 2007; Moors et al. 2013); different emotional states are 'refined, situated, further evaluated, and rerepresented' (Clore and Ortony 2008, 639), resulting in versatile emotional states or emotional episodes. According to Cunningham and Zelazo (2007), in each iteration, information from the previous 'cycle' is conveyed between higher- and lower-order processes, recalculated and shaped further as new information and attitude representations are included in the evaluation. The number of iterations may depend on variables such as individual abilities, motivation, and the available resources and opportunities to conduct the appraisal process (Cunningham and Zelazo 2007).

Emotions and cognition are intertwined, and emotions often emerge as a result of cognitive evaluation or appraisal, reflecting how an event or outcome relates to a person's subjective needs, values, motives, beliefs, current goals and other concerns, assuming it seems to make sense, matters, and is relevant to that person and their wellbeing (Baumeister et al. 2007; Moors et al. 2013; Silvia 2005a, 2005b; Thompson and Stapleton 2009). According to Clore and Ortony (2008), the emotional appraisal process has two parts: an associative aspect that is based on prior subjective experience, similar to other situations and temporal contiguity, and a slower rule-based reasoning based on the individual's developed ability to make computational distinctions. These two properties of appraisal ensure that the individual is prepared to react to fast events and has the flexibility to ensure the correctness of their emotional estimates (Clore and Ortony 2008).

The cognitive appraisal process creates inputs for new emotional outcomes, which can depend, for example, on the time available for processing and the amount of the recursive appraisal cycles – for instance, related to the viewing time of an artwork, or what kind of emotional output a person has learned to anticipate from a certain behaviour (Baumeister et al. 2007; Brieber et al. 2014; Cunningham and Zelazo 2007; Moors et al. 2013; Tinio and Gartus 2018). A person's pre-existing attitudes and values, together with their current goals and information about the stimulus and context – such as background information about the artwork and the artist – may also affect how they appraise

the object's valence, whether something is good or bad, and how further actions are planned (Cunningham and Zelazo 2007; Fingerhut and Prinz 2018; Gerger, Leder and Kremer 2014; Tinio and Gartus 2018). As Leder and Nadal (2014) suggest, appraisals are the key mechanisms to elicit aesthetic and art-related emotions and experiences.

### *2.4 Emotions and Communication*

Expressing emotions and understanding the emotions of others is crucial for humans as a social species (Solso 2003). Emotions are not only internal or subjective experiences; they also function as communication when an individual interacts with her social and physical environment (Baumeister et al. 2007; App et al. 2011). According to App et al. (2011), emotions can be expressed and understood in different nonverbal channels, and specific channels seem to be optimised for specific types of emotions. Different emotional displays, such as facial expressions, body movements or certain types of touch, seem to be fine-tuned to communicate certain emotional messages, thoughts and intentions. They are therefore important for coordinating different aspects of a an individual's life, such as social status and intimate relationships (App et al. 2011).

Also, as Baumeister et al. (2007) notes, the emotions of one person may influence the actions and emotions of other people, and people may behave in certain ways in anticipation that this will elicit certain feelings and emotions in others. Outward expressions may therefore not always correspond to a person's subjective emotional experience (App et al. 2011). According to Tooby and Cosmides (2008), a person can regulate her emotional expressions and share only that emotional information with others she sees as beneficial, depending, for example, on what kind of relationship the person has with the receiver of that information, or whether she is alone or with people who have similar or opposite interests. Some of the underlying mechanisms for regulating emotional expression can be innate and unconscious, and some may depend on individual development as well as cultural and social learning (Ekman 1999; Tooby and Cosmides 2008).

Since people can modulate their emotional expressions, and not all emotions are easily expressed verbally, there are challenges related to using self-reported data on emotions and emotional experiences. As Barrett (2006) notes, even though verbal self-reports about emotions can be more about the use of language related to emotions than the emotional experiences themselves, they at least give some information about the emotional experience, the valence of affective categories such as feeling pleasant or unpleasant, and high or low arousal states of the individual. However, such self-reported information seems to reveal more about affective states than distinct emotional categories (Barrett 2006). As Frijda (2008, 37) argues, emotions can generate many different feelings in diverse ways and modes, 'reportable or not reportable, diffuse and global or articulate and amenable to verbal description', which makes it difficult to research conscious emotions.

### *2.5 Aesthetic Experience, Art Appreciation and Emotions*

An aesthetic experience may be understood as the result of a complex and ongoing interplay among multiple perceptual, cognitive and emotional processes that can cause a variety of simultaneous and even contradictory emotions (Gartus and Leder 2014; Leder and Nadal 2014). An aesthetic experience has sometimes been called a distinctively aesthetic state of mind that is different from, for example, a religious or cognitive state, and which serves as a basis for explaining 'aesthetic properties, qualities, aspects, or concepts' of the aesthetic object, judgement and value (Iseminger 2005, 2). An aesthetic state of mind is different from a sensual pleasure; it does not require prior ideas about or concepts of art, and it can be focused on both art and non-art (Iseminger 2005).

Art and aesthetic experience are closely related concepts, but they do not necessarily go hand in hand. Although some art philosophers assert that the function of art can be described as a vehicle to afford aesthetic experiences, art may be understood as a stricter domain focusing on art objects instead of a broader concept of aesthetics, which is more about a response to any sources of aesthetic experience (Carroll 1999). Many mundane and everyday actions, such as cleaning the house, can give

rise to an aesthetic experience (Dewey 2005). In the case of graffiti, an individual may experience it as aesthetically pleasing or not, and at the same time evaluate it as 'artistic' or not, regardless of whether they would consider the graffiti a 'work of art'.

According to Dutton (2009), art appreciation arises from the imagination and direct pleasure generated by the perceived object, which is related to the work's recognisable styles and the demonstration of technical skills, virtuosity and the artist's creativity. Artistic creations are expressions of individual personality: they are saturated with emotions, challenge their creators and perceivers intellectually, and induce pleasure when those challenges are solved (Dutton 2009). Fingerhut and Prinz (2018) propose that when those aesthetically praised features are present, their artistic goodness, which leads to art appreciation, is seized by the emotion of wonder. Wonder can be generally characterised as a positive emotion that may be cognitively baffling and ambivalent, perceptually captivating, and create a sense of appreciation and respect, engaging us to further appraise artwork, invest our resources into exploring wonderous experiences, and enable thinking styles that promote tolerance for uncertainty and openness to new possibilities (Fingerhut and Prinz 2018).

The aesthetic experience and artistic evaluations of a work may be influenced by the viewer's individual characteristics such as attitudes, interests and knowledge regarding, for example, art styles and art movements (Gartus and Leder 2014). However, as Gartus and Leder (2014, 447) note, we may be 'emotionally moved by artworks we understand poorly, and it is possible to feel indifferent towards artworks we understand well and judge highly'. A whole set of priming factors affects every aesthetic experience: the social discourse and its prejudices, expectations and aesthetic orientations, as well as the context and situation, all shape the anticipations and define the environmental prerequisites for assessing an object (Gartus and Leder 2014; Gerger, Leder and Kremer 2014; Leder and Nadal 2014). For example, if an individual thinks she is perceiving a work of art instead of a photograph of real events, this may change how she relates to the work, as well as her judgements

and emotional reactions (Van Dongen, Van Strien and Dijkstra 2016). Even an individual's personality can affect their aesthetic experience and judgements; for example, openness to new experiences can have a positive effect on art and aesthetic appreciation (Fayn and Silvia 2015; Gartus and Leder 2014).

Although many disparities in art have evoked emotions between individuals, it may be possible to find some clusters of emotion types that each specific artwork typically evokes in most of its viewers (Tinio and Gartus 2018). As Tinio and Gartus (2018, 338) suggest, even though there are individual-level differences between people, we all share the same biological similarities and respond to certain artworks' 'aesthetic emotional affordances' in a similar, common fashion. Seeley (2015) describes aesthetic emotion as the result of a reduction in ambiguity of an evaluated artwork via cognitive mastering, where success in classification and evaluation generates an emotional state of pleasure or satisfaction (Seeley 2015). Simple feelings of liking or disliking, preference and pleasure from art are important, because 'much of human experience is simple and mild' (Silvia 2009, 48). However, art can also evoke more complex, special emotions such as beauty, pleasantness, interest and surprise, awe and chills, and even negative emotions such as anger, disgust, shame and embarrassment (Fayn and Silvia 2015; Silvia 2009). These kinds of emotions are often mentioned in graffiti and street art-related discussions (Dickens 2008; Halsey and Young 2006; Taylor 2012; Young 2005).

## 3. Aesthetic Emotions in Graffiti

Research on aesthetic evaluations has often focused on the central themes of positive/negative dimensions of beautiful/ugly or appealing/not appealing (Fayn and Silvia 2015). Another way to approach special aesthetic emotions is to group them into higher-level categories such as knowledge, hostile and self-conscious emotions (Silvia 2008).

### *3.1 Knowledge Emotions*

'Knowledge emotions' include interest, confusion, surprise and awe. They are related to goals and associated with learning (Silvia 2010). Such emotions are appraised based on an event's novelty and complexity, which can include assessing something as new, surprising, unexpected or mysterious; and its comprehensibility, a sort of a coping potential in which a person assesses whether she has the necessary knowledge and skills to cope with and understand an event or object (Silvia 2008).

Awe, which can be understood as 'a term for intense wonder' (Fingerhut and Prinz 2018), refers to something experienced as extraordinary, special, vast, physically or mentally larger than oneself or mundane everyday life (Fayn and Silvia 2015; Fingerhut and Prinz 2018). The importance of awe and wonder emotions are implied in the Purkutaide study:

> I have seen so much graffiti that it must be at some level really exceptional for it to evoke any passion. Any graffiti piece is good merely because it exists, but it has to have something that lifts it above others, that it erodes into deeper consciousness (Graffiti writer, over 40 years old).

In order to evoke strong emotions and awe, the artwork needs to be exceptional or somehow special compared to others. When an event or object is new and complex, it is typically considered interesting, but once it loses this novelty, interest may be lost (Silvia 2010). Like artwork, graffiti may also contain hidden and unknown elements that are appraised so that they evoke emotions of mystery and even excitement:

> This piece reflects something similar mysticality and the character is hidden by a mask, it evokes a criminal feeling, what graffiti basically has been. Something a little bit of criminal and exciting (Knows some about graffiti, 20–30 years old).

However, there is a fine line between experiencing something as positively intriguing and being negatively affected by not knowing anything about it. Being mysterious may evoke positive excitement and interest, but a lack of knowledge may also generate uncertainty and even fear:

> This is a little bit scary. I see that here a story continues in a western style from left to right, I can see the characters' direction going that way, but where does this go? I should know more about this (Knows some about graffiti, over 40 years old).

In addition to being an aesthetic emotion, interest is also a basic emotion that occurs throughout a person's life, responding to 'novelty, change, and the opportunity to acquire new knowledge and skills' (Izard 2007, 264). If the work does not have such properties to interest the appraiser, it may cause flat emotions and even disappointment:

> I feel a bit of a disappointment, not really anything else. It is neutral and like a wallpaper. It does not offend anyone, it just is (Graffiti writer, over 40 years old).

When there is no interest, there may also be a lack of strong emotions; the artwork may just 'exist' in a neutral emotional space. Also, different things interest different people for different reasons:

> First I get a feeling that I think it is nice that the gang does these kinds, it is really pleasant that there are guys who do with spray paint something totally different from normal, but then again at the same time it is not my thing. I do not experience this work as very interesting, so this does not evoke any strong feelings in me in general. I pass these kinds quite quickly (Graffiti writer, 30–40 years old).

If the work is not perceived as 'being my thing' or as something that would relate to the perceiver's own goals, it may be judged as disinteresting. In some cases, interest may rise because of personal

memories or goals, or the work may have other personally meaningful content (Tinio and Gartus 2018), or be closely related to self-conscious emotions.

Comprehension and more knowledge may make the artwork appear more interesting (Silvia 2008, 2010; Tinio and Gartus 2018), and positively affect the emotional valence. As a person gains new knowledge and understands more complex concepts, she starts to 'see subtle differences and contrasting perspectives that aren't apparent to novices' (Silvia 2008, 59), which also affects emotional appraisals regarding art (Fayn and Silvia 2015; Kuuva 2007; Leder et al. 2004; Pihko et al. 2011; Silvia 2008). In the case of graffiti art, expertise in graffiti can also impact appraised emotions (Gartus and Leder 2014; Gartus, Klemer, and Leder 2015). Some experts have found it is possible to express suppressed emotional reactions and to approach artwork in a more emotionally detached style, where the focus and content of the experience is on the artwork's stylistic, formal and contextual properties (Leder et al. 2014). Similar suggestions can be found in the Purkutaide study, where graffiti writers – i.e. experts – generally seemed to focus and explain things related to the visual appearance of the work and how it would 'fit' into their standards, personal taste and own graffiti writing. However, verbally explicating emotions seemed to be difficult for everyone, from novices to experts.

The viewing time may affect the graffiti appraisal process, as it may be understood as iterative cycles in which each cycle produces new combinations of thoughts and emotions (Brieber et al. 2014; Moors et al. 2013; Tinio and Gartus 2018). In this way, viewing time may impact the comprehension of the appraised graffiti:

> It is a bit ugly, yes. Maybe now when I start to look at it, when I have just gazed at it when passing by and as part of a whole, when now staring at this more it begins to look finer, one focuses on that. Before I interpreted this as uglier than now(Knows some about graffiti, 20–30 years old).

Viewing time may generate new and even opposite emotions, and impact how graffiti is judged and valued. It may require that the individual is voluntarily and deliberately putting effort and resources into the appraisal process.

### *3.2 Hostile Emotions*

Some people may perceive graffiti as ugly, less skilled, unaesthetic, visual litter or vandalism, evoking negative feelings such as disgust or repulsion, uncontrolled and harmful activity caused by social outcasts, neglecting or discarding their aesthetic and artistic values (Young 2005). According to Silvia (2009), 'hostile emotions' include anger, disgust and contempt, and are experienced when an event is appraised as contrary to a person's own goals and values, as deliberately eliciting anger, or when something is appraised as unpleasant, harmful or dirty and thus elicits disgust. Hostile emotions motivate aggression, violence and self-assertion (Silvia 2009). Some hostile emotions and assessing something as ugly were found also in the Purkutaide study:

> This is the ugliest or one of the ugliest of all these works. First is that character of course. It is probably some character, that is known in the graffiti circles, but for me it is just a blob, I don't know what it is. Then is the text, it does not really pop out to my eye. The whole thing is so garish, that even colour wise it does not pop out. I cannot make sense what it reads […] a bit unpleasant looking, where ooze is dripping (Knows some about graffiti, 20–30 years old).

Interestingly, the same work may have evoked hostile emotions in some participants but appraised as beautiful, good, or even playful and joyous in others. This may depend on how an individual recognises and associates perceived content in her subjective contextual level; a character may be associated with either revolting slimy nonsense or a funny figure from one's childhood, generating disgust in the former and happiness in the latter. However, in most Purkutaide study cases where the

works did not please the participants, they expressed their emotions as disinterest, lame or neutral, instead of having any strong negative emotions.

### *3.3 Self-conscious Emotions*

Silvia (2009) describes 'self-conscious emotions' as complex and consisting of pride, shame, guilt, regret and embarrassment. Such emotions are experienced when events are appraised as congruent or not with a person's own goals, values and self-image, when things are assessed as caused by a person herself or when events seem to be consistent or inconsistent with a person's own or cultural standards. Self-conscious emotions can be also collective and experienced in response to other people's behaviour, actions and achievements (Silvia 2009). 'A creator can be proud of a great piece of work, and the creator's family, friends, and fans can be proud, too', as Silvia (2009, 50) notes. Also, there may be something that the person can subjectively relate to in the perceived artwork or graffiti (Tinio and Gartus 2018). In the Purkutaide study, several participants expressed these kinds of self-conscious emotions, in both positive and negative terms. For example, a work may be appraised as pleasing due to its aesthetics but also because it is somehow assessed as similar to the appraiser's own artistic practice:

> Even though I have said many times that the aesthetic part is secondary, I am now saying that this pleases me personally the most because of its style and composition and everything. Maybe exactly because this style of work I have done myself too lately, that there is some subconscious connection to my own doing (Graffiti writer, over 40 years old).

It is easy to admit that noticing similarities to one's own goals, standards and physical activities may evoke positive emotions such as pride and feelings of a mental connection to the artist. However, if the work does not meet the expectations and collective standards of the participant, it may cause mixed emotions, where disappointment can be read between the lines:

> This is confusing, so bafflement is probably the emotion. I know that [the graffiti creator name] is a skilled painter and can do a lot of things, so I would say it leaves me a bit empty […] For me it is difficult to see anything more in this. In a way it is cheerful and perky […] but as a work it does not leave me with a joyful feeling (Knows some about graffiti, 30–40 years old).

As the previous extract suggests, being aware that one is appraising artwork that is expected to meet certain subjective criteria, and that should generate at least some positive emotions, can create an emotional collision with the pre-expectations and the experienced results of the appraisal if these expectations are not met. Inconsistencies between expectations and the actual experience may leave a person with disappointment and 'empty' or flat emotions, even though in theory (at a subjectively aware cognitive level) some visually perceivable elements of the work would suggest otherwise.

### *3.4 Emotions Related to Being Ugly or Beautiful*

In the Purkutaide study, many participants found it difficult to verbalise their emotions. Instead they generally first identified feelings with a positive or negative valence: the graffiti was either liked or disliked. In some cases, there was an emotion related to the work (such as interest), without the responder being able to define the work as beautiful or not. In most cases, instead of categorising graffiti as beautiful or ugly, it was instead evaluated as neither or both, or as 'nice', 'stylish', 'fine', 'quite beautiful' or 'pleasant'. When effort was put into exploring the details of a piece of graffiti, an individual may be positively moved and be able to describe certain perceivable features of the work, such as its technical and stylistic execution:

> This is perhaps quite calming, even though there are a lot of cutting forms, still this is constructed as a balanced whole. This is enormous […] but the colour scheme is very balanced or very simple

> […] However this is not by any means boring, the dimensions and forms and cuttings of the letters come well to the fore (Knows some about graffiti, 30–40 years old).

Shapes, colours, forms and other perceivable properties can make the work appear visually balanced and interesting. However, observing certain balanced visual qualities in a work of graffiti may not be enough to create an experience with a strong positive emotional valence or an overall aesthetically pleasing experience. Some participants in the Purkutaide study pointed out that in the case of graffiti, the aesthetic judgement regarding beauty is not even relevant:

> I have years ago stopped assigning value to graffiti in aesthetic axis. Because they are, in a way, in some way I myself see it as an irrelevant question, such as is graffiti fine or ugly or beautiful or awful, so they are in a way secondary things, because in graffiti we play, after all, with something completely different. The dynamics in that art are born from something totally different than the aesthetic solution (Graffiti writer, over 40 years old).

Aesthetic experience and artistic appreciation in graffiti may be related to other aspects, such as cultural knowledge and social practices. In addition, even if the work was considered visually beautiful or something else, it might still have been felt indifferently, emphasising the assumption that aesthetic judgements, emotions and art appreciation are not necessarily correlated (Gartus and Leder 2014). In general, most of the Purkutaide study participants seemed to consider the questions regarding emotions and whether graffiti was beautiful or ugly as the most difficult to answer:

> One should define beautiful and ugly and so on and so forth. What word would I come up with instead of beautiful?... Beautiful is not that thing, or ugly. What is the opposite of ugly when it is not beautiful? (Graffiti writer, over 40 years old)

Verbally explicating emotions and making judgements about beauty require a conceptual definition and identification for both, and for the respondent to have an adequate vocabulary to express the finer details of the experience (Tinio and Gartus 2018). In the case of visual art or graffiti, which is produced and perceived in pictorial format, it might be very difficult or even impossible to communicate all the associated emotional experiences and inferences as spoken words, which is also a general challenge in emotion research (Barrett 2006; Frijda 2008).

# 4 Conclusions

Different perceivable and non-perceivable content seems to affect the experienced emotional episodes. The reasons why an experience is more positive or pleasant, or why specific emotions are felt, may differ from one individual in one moment to another individual or another situation, which supports the view that emotions are complex constructions of situational and subjective components. Modern appraisal theories maintain that felt emotions depend not only on the perceivable features of the assessed object, such as a work of art or graffiti writing, but also on individual-level concerns and contexts.

Visually stylistic properties or other aesthetic qualities of the graffiti work may be assessed as pleasant looking, good or even beautiful, but that does not necessarily mean that the overall experience is felt positively. Appraising graffiti involves how novel and special it seems, what kind (and how much) information a person has about the work or artist or anything else, which may affect the comprehension of the work and how interesting and engaging it is perceived to be. Appraisal also depends on the viewing time and the resources an individual has put into the evaluation process. Graffiti is notorious for being judged as ugly or ‘visual litter’, accompanied by hostile emotions such as anger and dislike. These kinds of emotions may depend on individual-level understanding, goals, or personal history and life experiences. Emotional appraisal also involves how the work is seemingly related to the self, such as how it matches an individual’s subjective taste,

standards and even their way of doing graffiti, creating emotions from pride to disappointment or causing a flat, neutral feeling. Perceiving something as ‘beautiful’ is itself a very complex concept. A piece of graffiti may be judged as both or neither, or rather as nice, stylish, fine or something else.

In the Purkutaide study, several participants noted that the question about what kinds of emotions the graffiti works elicit and whether they are beautiful or ugly were especially difficult to answer. This was either because it was challenging to pinpoint or name exact emotions, or because some work did not seem to elicit any emotions at all. Some respondents may have been cautious about what they said out loud to the researcher. An important question regards the methodology and methods used to study emotions. Self-reports might reveal important information, but supplementary data could be collected, for example, via videotaping, questionnaires, psychophysical measurements, or even eye tracking or brain imaging. With careful research designs and analysis, it is possible to research emotions and aesthetic experiences. What (and how) different factors influence graffiti emotions, how they can be researched, and many other intriguing and exciting questions still await answers.

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# V

# EMPATHY IN TECHNOLOGY DESIGN AND GRAFFITI

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# Empathy in Technology Design and Graffiti

Mari Myllylä[0000-0002-9753-373X]

University of Jyväskylä, Faculty of Information Technology, P.O. Box 35 (Agora), FI-40014, Finland
mari.t.myllyla@student.jyu.fi

**Abstract.** This paper discusses empathic understanding, what it means, and how it can be acquired. After an overview of some theories and models from the existing literature, two experiments are presented, where participants were assessing graffiti works. From the results of these experiments, it can be concluded that empathic understanding involves both embodied processes and abstract inferences. Furthermore, understanding can be based on perceived, mechanistic bodily similarities and movements or on folk-psychological inferences mentalized between the observer/empathizer and an object/empathized. Empathic understanding it can also be gained by recognizing and implementing learned bodily skills and conceptual knowledge in mental simulations and theorizations. Furthermore, people have existing schemas and stereotypes that may affect their empathic understanding. In the context of technology design, this implies that the designer as an empathizer needs to consider their own and their users' perspectives and interactions in different sociocultural contexts; their background knowledge; their future intentions; and the ways empathy can be gained through both embodied processes and mental inferences.

**Keywords:** Empathic understanding, Technology design, Graffiti.

## 1 Introduction

Designers who create and develop products, services, and systems for other people must have some understanding of the potential end users' thoughts, beliefs, intentions, feelings, needs, and desires, and of how the users' unique mentally representational information content may affect their behavior. It is also important to understand if and how the users would be willing and able to use designed artifacts [1]. This makes understanding the end user an essential design issue [1-2]. Designed interactive products, services, and systems that are pleasant to use, and that fulfill some universal psychological need, may be defined as having a good user experience (UX) [3]. However, the quality of the user experience and what is judged to be good at a particular moment in the interaction may depend on, for example, the individual and the culture, as well as the specific characteristics, purpose, timing, and the context of the thing being used [4]. Interaction is an ambiguous term [5-6], but in the context of human-computer interaction (HCI), it can be defined as involving "two entities," that is, computers and humans,

"that determine each other's behavior over time" [5, p. 10]. What constitutes good interaction depends on how one defines interaction, and therefore it ranges from being understandable, simple, and controllable to being psychologically satisfying or motivating, or to enabling the user to fluently participate in the world [5].

A designer's job is to "read the minds" of the potential end users or agents, and to predict and understand the relationships between the users' mental states, attitudes (e.g., beliefs or knowledge), and actions. This requires the cognitive ability to "mentalize" or create theories of others' minds [7]. One way to attain at least some level of this intersubjective understanding is through empathy, or "empathy building" [2, p. 1]. It can be argued that empathy, defined as the ability to understand others, has been an essential part of design thinking ever since things have been designed and created, especially for other people [1]. The term "empathy" was initially discussed in the context of philosophical aesthetics as a psychological phenomenon of experiencing beauty and emotions when viewing art, first by Vischer in 1873, and in the early 1900s, by both Lipps and Titchener. This idea then spread to other fields, such as psychology and neuroscience [8]. In the field of human-computer interaction (HCI), empathic design emerged in the early 1970s [2], and it was widely applied in the human-centered design (HCD) field in the late 1990s [8]. Because the study of empathy in human-centered technology design is a rather young line of research, it is useful to investigate the role of empathy in technology design by considering theories, models, and findings from other, more established fields, such as aesthetics, neuroscience, behavioral and social sciences, etc.

### 1.1 Definitions of Empathy and Empathic Understanding

Different scholars define the concept of empathy in different, partly conflicting ways. For example, empathy can be defined as a form of intentionality, where one individual is attuned and emotionally responding to the situated experiences, feelings, and states of mind of another [9-11]. Empathy also can be thought of as any kind of goal-oriented activity that is rich in content and that enables the recognition of subjectivity of the other individual (the empathized) from the standpoint of the observing individual (the empathizer) [2, 9]. Empathy can be understood as a passive mental association between the living bodies of oneself and of the other, based on the embodied presence of the other's personality and on the direct perception of their bodily expressions [9, 12], reflected in the observer's own imagined experience of those circumstances [10-12]. Empathy can also be understood as an ethical responsibility that an individual experiences for another individual [12]; this definition connects the phenomenon of empathy to moral theories [13].

The empathized other can also be an object, such as a work of art [8, 14-17]. For example, the empathic experience of art comes from the emotions that an artwork itself displays and from the way the perceiver relates to those emotions, rather than from the artist's mood or attitude [14]. This can even happen when an observer is viewing non-representational, abstract art [18].

Empathy can be further subdivided into cognitive and emotional empathy. Cognitive empathy usually refers to an individual's cognitive ability that requires developed self-awareness and thinking to recognize and understand the thoughts, feelings, experiences,

and states of mind of another person from that other's own perspective, also enabling the feelings of sympathy and compassion [10, 12, 19]. Emotional empathy may refer to feelings such as "sympathy, empathic anger and contagious joy" [10, p. 22], which make us feel concerned about and care for others [20]. In sympathy and caring, the emphasis is mostly on negative feelings and on helping and alleviating another's suffering [11, 14]. Empathy and sympathy can also exist simultaneously [14, 20]. We can also direct empathic emotions to ourselves; for example, in moments of anxiety or in tense interactions with other people [8]. According to Zahavi [20], empathy and sympathy are phenomena where the emotional content of an experience is perceived as separate from the observing individual's own emotions. This distinguishes them from emotional contagion, where one individual begins to feel the way the other does [20].

Empathy does not mean that we perceive or experience others' experiences the same way they do, nor that we can access another's consciousness in the similar fashion as into our own [9]. We can experience the mental content and mental states of others in many different ways. I can experience the personality of another individual, but I can also be misled, or simply wrong. I am experiencing another individual as another mind, whose mental content may be partly accessible and partly hidden from me [9].

### 1.2 Ways to Gain Empathic Understanding

One way to gain an empathic understanding of another's experiences, from the standpoint of the other positioned in a spatiotemporal "there" in relation to our own "here," is through the dynamic process based on the perceived similarities of our bodies, and on our idea of how we ourselves would feel and act, emotionally and physically, in a similar situation in order to achieve the same goals [12, 21-22]. Newborn children already seem to have some sort of dynamic body models and prereflexive empathic abilities to understand and react to psychological phenomena of other individuals as goal-directed agents [9, 12]. The ability to interact with others automatically and unconsciously via body-mediated, embodied experiences might be the primary way for intersubjective understanding throughout our lives from birth [9, 20]. Viewers of visual art often experience empathic, bodily participation and motor simulation when they view an artwork, through, for example, seeing the direction of the brushstrokes and imagining the artist's body movements [16, 23].

According to Fuchs [21], we tend to utilize more demanding thinking mechanisms only in circumstances where we observe an event from a distance or when the object of our thought is complex and ambiguous. The concept of theory of mind (TOM) refers to an individual's mentalizing ability to attach different mental states to themselves and others and to make inferences, anticipating and explaining the behavior of oneself or others in terms of different mental states (such as intentions, desires, and beliefs) [7, 9]. This ability has often been explained using the theory-theory (TT) and simulation theory (ST) of the mind [7, 13].

Theory-theory claims that our understanding of others and their mental states and behaviors is based on an innate ability to make inferences and models based on folk-psychological information, which enables us to read others' thoughts and create common-sense explanations and predictions of behavior [9, 12-13, 19]. We understand

other people as "naïve attributors" via a cognitive process where the understanding is based on a "mentally stored set of functional laws" [13, p. 174] that we use, along with our observations, to make theoretical interpretations about the observed agent's internal mental states and behavior [13, 24]. According to the simulation theory, on the other hand, in order to understand others, we use not theories but analogies based on our own experiences of how we would think, feel, and behave in a corresponding situation. We do this by mentally putting ourselves in the place of the other, and incorporating their beliefs and desires into imagined simulations that we then project onto that person [9, 12, 19, 24]. Furthermore, instead of just TT or ST, we might have sort of hybrid mechanism, where one or the other strategy is used depending on the situation [7, 9, 19].

Simulation theory has gained support from the discovery of mirror cells and their automatic and unconscious activity in, for example, premotor, frontal, and parietal brain areas when we meet other living creatures like us. They are activated when we act or when we observe, anticipate, or imitate the goal-directed bodily actions, communicative gestures, verbal communication, and facial expressions of others [9, 12, 22, 24]. Mirror cells and their resonating may also be part of our perceptual processes that enable fast direct perceptions of others and fast reflex-like reactions through the autonomic nervous system, such as emotion-filled mental states and bodily expressions and gestures [9, 14]. Mirror cells may be essential for the brain's mechanisms that give the empathizer clues about the other's feelings, intentions, and actions, so as to enable intersubjective experiences and communication [9, 12, 14, 22, 24].

Perceiving two objects that touch one another may activate our somatosensory cortex and simulation-related processes, as if our own bodies were touched [15-16]. Simulation processes might create a feeling of the observer's own body being in a similar geometric shape and position in relation to other objects as what is perceived in an artwork. Seeing a pole supporting a heavy object might generate the feeling of a heavy weight on the observer's own body and create empathy toward the inanimate object itself [15]. Imagining how an artist's body had moved while creating an artwork might activate the observer's own motor brain areas and mirror cells [15-16, 25].

Some of our behavioral patterns, such as gestures or bodily expressions, are socioculturally learned. This may affect how we perceive and interact in different situations [26]. We also learn to perform certain motor functions and behaviors in order to, for example, use devices or tools or other technological artifacts [1]. In this case, the learned bodily movements may transform into automatically activated, sensorimotor behavioral patterns and acquired skills [27-28]. We can learn high-level information about bodily movements and action sequences from observing the actions of others, and our own learned skills may also affect how we interpret and judge the movements and outcomes of the actions of others [28]. For example, an art critic may learn to perceive and understand the skillful movements and mannerisms of an artist by immersing themselves in the artworld's social and linguistic discourse, even if the art critic does not create art [29-30].

With the help of language and stories, we can share and understand complicated and abstract mental content, perspectives, experienced events, and learning of other people [9, 31]. When we create, share, and listen to or read stories, we also develop rational explanation models and narrative scripts and schemas for others' general behavior in

relevant practical situations, whether consciously or not. We learn what has happened before, why the person in the story does what she does, what the results of her actions are; this information is reflected in our learned sociocultural categorizations, norms, practices, and contexts [7, 9, 32]. The story can be, for example, in the name or in the background narrative of an artwork and its artist [17]. These descriptions provide semantic information that directly guides the observer's attention and offers a wider cultural and cognitive context in which the artwork is evaluated [17]. Stories can also be shared through other modalities, such as pictures or bodily gestures [31]. In empathic understanding, emotions are transferred from their original context to realistically felt events in an imagined story, where emotions are created and molded by events and scenarios, and by characters and their unique histories, thoughts, goals, and emotionally filled memories [17, 33].

There are significant differences between individuals in terms of their ability to feel empathy in different situations [10]. Simulation is most successful when the observer and the object are quite similar [7, 19]. We often feel and verbally express stronger empathy toward people we already care about or people whom we consider similar to our individual or group identities [7, 11, 19-20, 34]. Emotions are often related to our own selves, and experiencing empathy may involve things that affect and possibly benefit the empathizer, in addition to the object of empathy [11]. In social interactions, we may use mental strategies that are based on our pre-existing opinions, beliefs, and knowledge, which benefit us and help us to fulfill our self-related goals and needs. This may skew our empathic understanding of another's experiences [19]. For example, art experts may distance themselves from the direct and automatic empathic bodily and emotional reactions that the work generates in order to focus on other aspects that they consider more important [17, 35].

Kesner and Horacek [17] propose that an individual's empathic response to an artwork depends on the interaction of five things: 1) the observer's ability to respond to the perceived experiences of others; 2) the observer's cultural-cognitive ability and the observer's experiences, skills, and knowledge that help understand art and cultural artifacts; 3) the observer's individual characteristics such as age, gender, and prior life experiences; 4) how closely and in what way the observer relates to the people represented in the artwork; and 5) the observer's psychosomatic state in the moment of perceiving. The character of the empathy experienced toward art can also significantly depend on how the observer moves around and physically perceives the artwork [17].

The phenomena of empathy and empathic understanding are complex and multidimensional concepts. Implementing theories of empathy in the practical work of designers is easier said than done. Designers face several challenges when using empathic understanding in their everyday working practices. In addition to the possible biases that may affect how empathy is felt, designers may, for example, be using too-superficial or too-narrow research methods, techniques, or tools, which may yield only surface-level snapshots or stereotypes of users [2, 8, 33, 36]. As many scholars have noted [see, e.g., 2, 8, 33, 36], it is not enough to put oneself, the designer, in the user's shoes and imagine how the designer would feel there, or to describe the user in a simple, non-dialogical story that can easily be misinterpreted. Designers are not all-knowing observers who stand apart from the user. It is insufficient for designers to define what is

normal based on their own perspectives and lived experiences, so that the user's experience is not appreciated, or, in the worst-case scenario, is considered a spectacle. This makes empathy an ethical design issue [2, 33, 37]. Designers are human too. Like all humans, designers experience empathic understanding in different ways and forms, involving different processes, which can be influenced by many things, such as individual and situational factors.

## 2 Empathic Understanding in the Experience of Graffiti

Graffiti can be described as communicative cultural artifacts, and in some cases also as works of art, that are designed by their "writers" using special techniques and tools, such as spray paint, and that are experienced and judged by their perceivers [38-40]. Graffiti writers are like designers; graffiti are like technology designs; and the people who experience graffiti are like the people who interact with and experience any other designed thing. Thus, the empathic understanding of how people experience technology design can be investigated using other domains of design, including graffiti, as reference.

Two experiments were conducted to study what kind of perceptions, emotions, and thoughts people experience when they view graffiti. Both experiments took place during the Demolition Art Project [41] in late summer of 2016, where several graffiti and mural works were painted in the research location called the Petteri building in Kerava, Finland. All the graffiti assessed were large writings or interpretations of letters painted on walls. Some of the works also included a character or a figure. The participants were volunteers. Some were random passersby, and some were asked to participate by their friends (snowballing). All participants gave oral consent for participation before the experiment. Participants were rewarded for their participation with a movie ticket. The protocols from experiment 1 contain interesting unpublished data related to empathic understanding, which is the focus of this paper. In both experiments, the data were analyzed using applied thematic analysis [42] with Microsoft Excel version 16.41 software.

### 2.1 Experiment 1

**Method.** *Subjects.* 19 people participated in the experiment (8 females, 11 males; age range: 13–63; mean age: 36.6 years), divided into two skill groups. The two groups consisted of ten laypeople (people who said that they knew little or nothing about graffiti) and nine experts (people who said that they knew a lot about graffiti, and of whom most, though not all, also created graffiti themselves).

*Stimuli and Procedure.* Participants individually assessed four graffiti and one mural painting, selected by the researcher. An example of an assessed graffiti work is shown in Figure 1. A semi-structured interview was done with participants as they were thinking out loud looking at each graffito. Protocols were recorded with a hand-held recorder. The interview had nine questions:

- Questions 1–4: what kinds of thoughts, emotions, meanings, or stories does the work evoke in you?
- Question 5: is the work beautiful, ugly, or something else?
- Question 6: what about the work's style and colors?
- Question 7: what draws your attention in the work?
- Question 8: where could you imagine seeing it?
- Question 9: is it art?

**Fig. 1.** An example of an assessed graffiti work. Photo: Jouni Väänänen

**Results.** The thinking-aloud protocols were transcribed into text. Data were first classified into codes based on semantic units, which were then combined into larger categories. This analysis focused only on the type of content that relates to empathy manifested as understanding the mental content and actions of others, where the other could be either a person or an object such as the graffiti work itself. Some participants produced rich and lengthy descriptions, whereas some protocols were much shorter and shallower in their content. After analysis, several types of semantic content related to empathic understanding were found in the participant protocols. These were grouped into three themes: meaning for oneself and for others; evaluation of skills, techniques, and practices of the other and of oneself; and analogies, stories, and bodily feelings.

*Meaning for Oneself and for Others.* All 10 laypeople and 8 out of the 9 experts discussed the graffiti work's meaning for the self and how the work fits into the participant's subjective taste and preferences in art. However, 9 laypeople and 8 experts also reflected on what the graffiti could mean for and how it could be experienced by other

people, such as the artist, members of the graffiti subculture, and laypeople such as "the granny next door".

The following excerpts from both a layperson and a graffiti expert are examples of how the graffiti were thought to be interpreted and experienced by other people.

> "Interest, first of all in how these have been made, where these started from, and it would also be quite nice to hear what idea [the graffiti artist] had here, because there is some thought behind these for sure, but what is it? For me this is just something nice to look at." (Layperson)

> "I have to say, I appreciate that this is a complex style, which to a layperson might look like there were only arrows there, here and there, but then again it is difficult to execute this in such a way that it seems logical even to the kind of person who has more experience with these things." (Graffiti expert)

Experts mentioned how the work may have been experienced by laypeople slightly more often than laypeople did (44 mentions by 8 experts versus 29 mentions by 6 laypeople). In general, many of the participants said that the work may be appreciated and experienced differently by other people because they have, for example, different interests, different past personal experiences, and theoretical graffiti-specific cultural and technical knowledge, as well as practical skills.

*Evaluation of Skills, Techniques, and Practices of the Other and of Oneself.* 7 out of the 10 laypeople and all the expert participants discussed the type and level of skills that may be required to make graffiti and that the artist may possess. Whether the artist was understood to have mastered or to lack special knowledge about graffiti aesthetics and practices was determined based on the work's visual details that the observers could perceive in the work. Skills were also evaluated based on the perception of the technical level of the work and by imagining or thinking what techniques and actions its execution may have required from the artist.

Technique and how the work was made were discussed by all participants by noting visual aspects of the work, such as its level of technical details or size, and then imagining how the work may have actually been done by the artist. These discussions were often supported by detailed descriptions of what kind of bodily movements and technical tools and practices would be required specifically to create graffiti, as the following extract illustrates:

> "I'm looking at this technical execution, here the mastery of the jug [i.e., spray can] is so phenomenal, from thinner to thicker line, and the color gradations where three shades are mixed together. And this looks easy. I could imagine the guy dancing in front of this, making it in half an hour, when in reality it has taken hours. It looks easy even though it is anything but easy, even those shapes of the letters. [Text extracted by researcher] What I most notice as a letter painter is those letters, and can I read it and can I grasp the rhythm? And if there was music my other leg would begin to tap a beat, this just takes you away." (Graffiti expert)

The artists' techniques and methods were often compared to observers' own techniques and methods, especially (not surprisingly) in the case of experts. Subjective technique and doing were mentioned 47 times by 7 experts, compared to only 5 mentions by 2 laypeople. These participants discussed how they would themselves feel and experience the work if they were the artist. Some participants wondered how the work had been planned or how the idea for the work had been developed by the artist. Only 2 laypeople, but 7 out of the 9 experts, discussed how they would have come up with or planned the work themselves, basing their ideas on their own style and skills and on various possible scenarios and situations.

*Analogies, Stories, and Bodily Feelings.* All participants used different types of analogies, where they associated their perceptions of the empathized work or artist with other familiar or imagined characters, scripts, or situations in order to describe, explain, and understand the meanings, emotions, interests, motives, and possible actions of the empathized. Some participants elaborated on how the character or events displayed in the work reminded them of some movie or cartoon characters or sequence of events that the empathizer had experienced or had learned from, for example, reading graffiti magazines. In many cases, works or artists were associated with formats of analogous stories that described the past, the present, and the implications and intentions for the future. The stories also had emotional tones or moods associated with them. For example, a layperson participant described a graffiti character as an intentional agent with plans of its own: "This does not have any meaning for me, but I bet that guy there would like to do something with all these letters and these brown balls. Maybe he is moving them somewhere."

All participants described the visual properties of the works by drawing different kinds of visual analogies to how the work feels or is physically sensed in an analogous way to the observers' own bodily sensations. For example, a large graffito was described by a graffiti expert as being "cramped" in its place. The expert added that "fortunately there is some white in the borders, so that it gets space to breathe." Some participants explained that the work seemed to create a sense of movement or a sense of heaviness or lightness through the shape or the orientation of the work's visual elements. Perceivable properties such as shapes and colors were often compared to certain moods and emotional themes. For example, light and bright "candy colors" were said to make the work or its characters seem "happy or joyous." Many participants also paid attention to the facial expressions of the graffiti characters, where the expression made the character look, for example, "surprised" or "frightened," causing the observer to feel compassion for that character.

### 2.2 Experiment 2

**Method.** *Subjects.* 30 people participated in the experiment. One form was omitted from the results because the participant returned it empty, so the analysis focused on responses from 29 participants (19 females, 10 males; age range: 11–68; mean age: 39.2 years). There were 9 people who knew nothing about graffiti, 11 people who knew

very little about graffiti, 6 who knew a fair bit about graffiti, and 3 who were graffiti experts (people who knew a lot about graffiti and some of whom also created graffiti themselves).

*Stimuli and Procedure*. Participants were asked to assess individually two graffiti works selected by the researcher (Figures 2 and 3). They were asked to fill out a paper questionnaire with a pen regarding how they felt and thought about the graffiti while viewing them. One question asked, "Do you know who made this work? (Yes / No). Tell us something about the maker of this work. If you do not know the maker, describe what you think they could be like." There were two sets of 12 open-ended questions, 34 semantic scale questions, and 20 Likert scale questions in the questionnaire. However, only the question mentioned above was relevant for this paper about empathic understanding, and it is the one analyzed here. While assessing work #1, 22 participants wrote about how they imagined the artist. One of them knew who the artist was. While assessing work #2, 20 participants wrote about how they imagined the artist. One of them knew who the artist was. In general, the texts were quite short, ranging from one word to a couple of short sentences. This was probably because the questionnaires were quite long and the participants had to fill out the questionnaire with pen and paper, which took quite a lot of time (on average about 30–45 min) and effort.

**Fig. 2.** Graffiti work #1 assessed in experiment 2. Photo: Jouni Väänänen

**Fig. 3.** Graffiti work #2 assessed in experiment 2. Photo: Jouni Väänänen

**Results.** The paper questionnaires were transcribed into a digital format. Data were classified according to codes of semantic units, which were then grouped into larger categories. The ways the participants described the imagined other can be divided into four categories: age, gender, characteristics, and background.

*Age.* The assumed age of the artist varied from young to middle-aged. For work #1, 14 out of 29 participants mentioned age. 9 participants thought the artist was young or in their 20s; 2 people thought the artist was about 30; and 3 thought the artist was in their 40s or older. For work #2, only 6 people mentioned age. Of them, 3 participants thought the maker was 30–40 years old, and 3 people thought the maker was young or 20-30 years old.

*Gender.* Most of the participants who mentioned gender assumed that the artists of both works were male. For work #1, 11 participants mentioned gender. Of them, 8 people assumed the artist was male, and 2 people thought the artist could be either male or female. For work #2, only 7 people mentioned gender, and all assumed the artist was male.

*Characteristics and Background.* Participants described not only the artist's mental characteristics such as personality and behavior, but also external attributes, such as what the artist may look like or where they may live in. Participants also thought about background details regarding the artist's possible expertise and professional interests,

such as possibly working in a visual arts field, being a skilled graffiti writer, or having an interest in sci-fi, cartoons, or graphic novels.

For work #1, 7 participants mentioned mental characteristics of the artist: being easy-going; being chill and funny and/or sensitive; thinking and being thought-provoking. Only 4 participants commented on the artist's external attributes like body shape or brown hair. 9 out of 10 participants thought the artist had a lot of experience with graffiti.

For work #2, 12 participants described 8 mental and 4 external attributes of the artist. The artist was described as someone who thinks a lot; brave and open to new experiences; having a sense of humor; and very imaginative. 4 participants commented on external attributes, such as the artist's looks or graffiti name. 7 participants thought the artist worked in a visual arts field or was interested in visual arts and graphic forms, and 2 participants mentioned that the artist was interested in sci-fi.

*Stereotypical Descriptions of a Graffiti Artist.* The participants' assumptions may be summarized as the following stereotypical descriptions of the artists.

For work #1, the artist may have been something between a young and unexperienced hip-hopper man or woman who grew up on the streets to a middle-class, middle-size, middle-aged but youthful man. The artist is highly proficient in graffiti and likes graphic novels or cartoons.

For work #2, the artist may have been something along the spectrum from a young man to a middle-aged, bearded, male graffiti artist. He works in a visual arts field and likes sci-fi.

There was more variation in the assumptions about the artist for work #1 than for work #2.

## 3 Discussion

In order to research empathic understanding in technology design, I studied in what ways and through what kind of content empathic understanding can emerge among different people when they view graffiti. To answer these questions, I conducted two experiments. In the first experiment, 19 participants were thinking aloud in a semi-structured interview while they were assessing five graffiti works. The interview included several questions asking the participants about how they thought and felt about the works. In the analysis phase, the participants were divided into two groups, laypeople and experts, based on their knowledge of and involvement in graffiti. In the second experiment, 30 participants evaluated two graffiti by filling out a paper questionnaire. Participants were asked what they thought the person who did the graffiti was like. Two-thirds of the participants knew little or nothing about graffiti, while the rest were graffiti experts.

The literature on empathy suggests that there are two ways that people understand and empathize with the other or the empathized, whether that other is another person or an object. One is via inference-based processes or mentalizing unobservable mental states and content, and the other is via embodied processes or identifying observable or

imagined behavior (or "mechanizing") [43]. The results from the first experiment in this paper suggest that both processes of empathic understanding may be involved when people assess graffiti. The results from the second experiment suggest that people have stereotypical assumptions of others.

Based on the results from the first experiment, people have several ways or use several processes to gain empathic understanding of a graffiti work, the graffiti artist, and other viewers. These ways are compared to the observer's own bodily and mental states, characteristics, and preferences. The participants explained not only what the graffiti meant to them, but also what it may mean to someone else, such as the graffiti artist, a person who was part of the graffiti culture, or a layperson without much knowledge of graffiti. Thus, empathic understanding is related to how we understand ourselves, what we know or assume about others, and how we compare our own tastes and preferences, emotions, values, knowledge, and skills to those of others. Empathic understanding requires the understanding of mental states, mental information content, and behavior to be directed to a first-person view in the form of introspection, as well as to others. Both self-oriented and other-oriented mentalizing are necessary [8, 13].

The results suggest that participants as empathizers used both simulation and theorizing to gain empathic understanding of the other as the empathized. Simulation was expressed as imagining how they would themselves feel, think, and act in the place of the other. Theorizing was expressed by making inferences based either on folk-psychological information or on learned abstract concepts and sensorimotor, bodily practices to model what other people may think, feel and do in various situations.

Based on protocol analysis from the first experiment, the ways of understanding others include understanding the similarities and differences between the perceived or imagined bodies of the empathizer and the empathized, based on embodied processes. These can be described as imagining the felt emotions, sensations, and movements of the other. People perceive them either directly in the graffiti work as simulated bodily actions of the artist, as if the work or some character in it could itself sense or act, or by imagining one's own movements as if one were in the artist's place.

We can imagine how we would experience the physical dimensions and sensations that we perceive in the graffiti, thus feeling empathy toward the graffiti painting itself. We may also imagine from the visible traces left by spray cans what and how the artist might have thought and felt when they were creating the graffiti. In the first experiment, participants also evaluated how skilled the artist was by pondering what kind of physical actions and knowledge might be necessary to execute graffiti. In particular, the people who did graffiti themselves (graffiti experts) compared the artist's skills and technical mastery to their own skills and preferences.

In order to recognize the skillful actions and evaluate the skill level, the observer needs to have learned knowledge and theories regarding what skills are required in that specific domain. Thus, this kind of empathizing that is based on an embodied process. It requires more than just understanding the bodily movements in some prereflexive manner. The results from the first experiment suggest that there is another level to embodied processes, which is the observer's knowledge of learned sensory-motor patterns and practices, and which the observer uses to infer the bodily behavior and sensations

of the other. To understand the goal-oriented actions of the other, the observer or empathizer must have a sense of what those goals might be. That requires not only imagining what kinds of goals the empathizer would themselves have in that situation, but also understanding the empathized and their individual and collective sociocultural settings, backgrounds, practices, norms, values, incentives, and other abstract concepts that relate to the empathized's specific domain of expertise. In other words, the mental information content that is stored in and retrieved from the declarative memory components seems to interact with the procedural memory components in the same system that also affects empathic understanding [28].

Protocol analysis for the first experiment also suggests that people create stories in order to explain and empathically understand events and individuals when assessing graffiti. These stories have themes and plots where different events are unfolding. They have characters and involve the observer's reasoning as to why those events or characters are the way they are. They also include speculations about where those characters came from and what they were about to do next. The characters in the graffiti assessed and the other perceived content were often understood as analogous to some familiar characters or learned narratives from, for example, popular culture. However, analogies were also drawn between, for example, a work's color scheme and certain sensations, emotional themes, or moods.

Stories bind something that is already known with new information, and in this way they create coherent narratives that help the storytellers to make sense of the world with its objects and situations and of the storytellers' own life events and experiences. This allows storytellers to share their own knowledge, values, and experiences with others [31-32]. Stories may also display the existing knowledge and beliefs of the storyteller and of the social milieu that the storyteller participates in [7]. When in the second experiment the participants were asked to imagine what the graffiti artist would be like, four distinct themes emerged in the answers. These themes were age; gender; characteristics such as personality, lifestyle, or physical appearance; and background aspects such as the level of professionalism and interests. The responses presented some fairly consistent characteristics of "a graffiti artist" (e.g., either a young or a middle-aged man; a professional in graffiti or in a visual arts field). However, it is noteworthy that not all participants imagined the artist quite the same way. There was variation in, for example, whether the artist was as assumed to be young or old; whether they could be "either a man or a woman"; whether they were from a "middle-class" background or "grew up on the streets".

Not surprisingly, some people commented on the artists' interest in cartoons or sci-fi, as there was a Mickey-Mouse-like character in the first graffito, and visual elements that could easily be associated with popular science-fiction catalogues in the second graffito. However, most of the participants did not know who the artist actually was, so either there was something in the works suggesting that the artist was some specific kind of person, or the participants were drawing conclusions based on their own pre-existing knowledge and schemas. In the latter case, the evaluations may be based on the observer's own learned cultural stereotypes regarding who makes graffiti and what kind of graffiti they make. Most of the participants were laypeople and presumably did not have much personal experience of graffiti artists, and were less capable of picking

out visual nuances and information cues from the graffiti than actual graffiti artists. They may have had to rely on their own assumptions of the typical artist, not on what they could decipher from the graffito, its style, and the artist's "handwriting." However, at least in experiment 2, there was little variation in the content of the participants' replies regarding how they imagined the artist. This suggests that laypeople and experts rely at least partly on the same general stereotypes, possibly because they lacked information from firsthand interactions and experiences with those particular artists, which would have helped them construct "individuated schemas" [44, p. 76] in their mental representations of those people. The participants could not base their evaluations on individuated schemas, but instead had to rely on "social scripts, narratives and social norms" [7, p. 132], which were constructed into certain stereotypes. These stereotypes are associated with membership in the specific social category of graffiti artists. This was necessary to improve the accuracy of empathic understanding and judgement of the other [44].

Overall, the following summary can be made based on the two experiments. There are four different ways of gaining empathic understanding:

1. Through embodied processes that simulate mechanistic or prereflexive motor movements and bodily similarities;
2. Through theorizing based on folk-psychological information applied to naïve interpretations of others' mental states, mental content, and intentions;
3. Through embodied processes, which include both procedural and declarative information and help recognize learned bodily skills and practices; and
4. Through theorizing based on learned knowledge and concepts applied in the form of stories or verbal descriptions.

These ways are similar to what has been suggested in the existing literature on empathic understanding [see, e.g., 7, 9, 12-13]. They are also relevant in empathic understanding of works of art and graffiti [14, 16-18]. Furthermore, the analysis of the first experiment suggests that participants used both mental simulation and theorizing together, rather than individually, when they directed their attention to others. This supports the idea that people use hybrid mechanisms when mentalizing about others' mental states and behaviors [7, 9, 19]. An individual's assumptions about the other may follow some learned social scripts or schemas or stereotypes [7, 44].

Even though the two experiments presented in this paper support existing models and theories of mental content and empathic understanding processes, several concerns should be mentioned, which may affect the results. First of all, the number of participants was quite small. In the second experiment, the questionnaire was very long and tedious, and in addition, participants had to fill out the questionnaire by hand with pen and paper. As a result, the answers were very few and short. Thus, in the second experiment, the analysis is based on a very small sample size and a very small amount of data. In the first experiment, by contrast, people could talk out loud, and produced much more data in their protocols. Therefore, I recommend using thinking-aloud protocols rather than written forms as the research method when investigating people's empathic understanding. As a final concern, graffiti themselves may be quite a controversial,

value-laden, or emotionally charged topic to some, which can skew what and how people feel, think, and say, both about the graffiti works and about the people involved in the graffiti culture.

## 4 Conclusions

In this paper I have discussed empathy in technology design, why it is important, and how ways of empathic understanding can be researched using graffiti to produce knowledge that supports technology designers' work. Empathic understanding is the ability to understand and predict the thoughts, feelings, mental states, and intentions of others. In this process, the observer or empathizer tries to perceive, recognize, and make sense of the past, present, and future mental states and experiences, feelings, thoughts, intentions, and actions of the other or empathized. Empathy is understanding what the other thinks and feels, but it is different from emotional contagion, which means actually feeling the same emotions as the other. For example, designers should be able to recognize and separate their own personal experiences and emotions from those of others. The emotions evoked by graffiti from experiment 1 are discussed elsewhere [40].

As Bennett and Rosner [2] suggest, designers need to be attuned to the differences in other people's bodies and social relationships, and to connect, share experiences with, and learn from those people. To do this, designers could investigate and use at least four ways of gaining empathic understanding, which I have presented in this paper. They are understanding others (whether people or objects) via embodied processes through bodily similarities and simulations; via folk-psychological inferences; via recognizing learned skills and bodily practices; and via inferences based on learned information such as knowledge and concepts. An empathizer needs to recognize and understand not only what kind of bodily sensations the empathized other may have, but also what kind of meanings different objects and contexts may have to the empathized. Thus, the empathizer needs to have some idea of the knowledge, beliefs, interests, characteristics, past life, future goals, and the social setting of the person they are observing and trying to understand, and of which things are important to that person [1-2].

Technology designers also need to consider whose perspective they are embracing—their own or that of others—when they are developing their user understanding. Designers also need to be aware of their own and other people's thinking biases, such as what kind of stereotypes the observer or the observed might have. This could affect whether and how people feel empathy, and how this may affect the observer's understanding of the observed.

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# VI

# EXPERTISE AND BECOMING CONSCIOUS OF SOMETHING

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# Expertise and becoming conscious of something

Mari T. Myllylä *, Pertti Saariluoma

*Faculty of Information Technology, University of Jyväskylä, Finland*

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ABSTRACT

*Becoming conscious* refers to how new mental content emerges in the mind. To understand this phenomenon, we studied how people experience graffiti by thinking aloud. In protocols, we found three types of becoming conscious: experiencing emotional and perceptual content directly linked to a perceivable object, non-perceivable or apperceived information content, and transformation and restructuring processes. On the grounds of the content-based study of protocols, we suggest that people can become conscious of either direct perception, apperception, or restructuring thinking. Research of the mind, which is grounded in analysis and explained by properties of mental content, can be called *content-based thinking* or *content-based psychology*.

## 1. Introduction

When a creature experiences something, internal and external information are processed in the creature's mind, resulting in mental representations of the ongoing action and the surrounding world as mental information content that is experienced subjectively and consciously as a unified and coherent phenomenon and which is understood, felt, and acted upon in some particular way (Lycan, 2012; Revonsuo, 2010; Saariluoma, 1995, 1997, 2001). Thus, consciousness has information content or mental content (Allport, 1980; Fodor, 1992). One could even say that consciousness is precisely the information a person consciously experiences at any moment. Thus, the information content of consciousness is the content of human experience (Saariluoma, 1995, 2001).

A crucial moment in the human mental process involves becoming conscious of something. A moment earlier, an idea about something is not present in the conscious mind, but a moment later, this idea becomes the focus of conscious thinking. Classic empirical examples of such transitions are insight and restructuring (Köhler, 1957; Wertheimer, 1945). As "becoming conscious of" is intuitively an important process in the human mind, we study the mental processes involved in this phenomenon.

Scientific research aims to analyse and explain given phenomena. This is familiar to all researchers. However, it still makes sense to explore the right level of analysis and the right way to form explanatory grounds in the study of becoming conscious of. *Explaining* means providing an answer to how- and why-questions such as "How things can be as they are?" and "Why are things as they are?" (Hempel, 1965; Saariluoma, 1997). In such work, it is important to find explanatory grounds, that is, what kind of known phenomena can be used to make the structure and origins of studied phenomena conceivable (Hempel, 1965; Revonsuo, 2010; Saariluoma, 1997, 2003, 2005).

Mental representations and information in them have been the foundational concepts in discussing any mental phenomenon when investigating human cognition and thinking (Allport, 1980; Anderson, 1983; Chalmers, 2010; Fodor, 1992; Neisser, 1976; Newell & Simon, 1972). Becoming conscious of something can thus, mean obtaining new conscious information about a topic in mental representations. If there is no required information in a mental representation, one cannot be conscious of it. Hence, *becoming conscious of something* means getting the relevant information in the contents of conscious and subconscious mental representations.

One important psychological phenomenon that can provide an understanding of learned mental contents, their representations, and relevant mental processes is expertise. Experts are known to encode better domain specific situations. For example, medical doctors experience their patients differently than laypeople do. In other words, doctors have different mental information contents than laypeople do. Doctors can ask about symptoms, examine laboratory results such as X-ray pictures and make, based on given information, specific caretaking decisions. At the same time, patients can also see this same information but have no idea what it means or what should be done in the situation. Doctors, as well as all experts in their domains, can be aware of things which are obscure to laypeople. Here, we argue that this everyday phenomenon introduces a new way of considering human conscious awareness and mental experiences. It makes it possible for researchers to

* Corresponding author. University of Jyväskylä, Faculty of Information Technology, P.O. Box 35 (Agora), FI-40014 University of Jyväskylä, Finland.
*E-mail address:* mari.t.myllyla@jyu.fi (M.T. Myllylä).

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analyse and understand the role of mental contents in the process of becoming conscious of something.

*Expertise* is an acquired or learned domain-specific skill (Ericsson, 2006). Consequently, expertise studies may provide a good means of studying the phenomenon of becoming conscious of information (Ericsson, 2006; Saariluoma, 1995). However, it is also essential to ask here, how collected information by comparing experts and novices should be analysed to improve our understanding on what is the process of "becoming conscious of something" like and how can we explain this phenomenon.

Studies on experts' thinking have unveiled phenomena relevant to our present work. First, experts "see" things that novices cannot perceive (de Groot, 1965; Saariluoma, 1995). For example, an art critic may see brush strokes in a painting which are typical for a particular artist or style, but a person without expertise in art will be unable to note such things (Collins & Evans, 2007; O'Connor, 2004). Secondly, experts' thinking fluctuates from one piece of content to another (de Groot, 1965; Saariluoma, 1995). In initial stages, subjects in problem-solving experiments cannot "see" or experience a solution, which later becomes clear (Duncker, 1945; de Groot, 1965; Newell & Simon, 1972; Saariluoma, 1995; Wertheimer, 1945). If the given pieces of tradition are collected into one solution, it is possible to outline a solution to the problem of how we can investigate the information contents of experiences (Saariluoma, 1995, 1999). The core idea is to analyse what a particular piece of mental content can explain about some aspect of human action (or goal-directed behaviour). For example, chess players' search for a solution is limited to a few moves, while computer programmes investigate hundreds of thousands of variations in a second (de Groot, 1965). It is empirically possible to show that the contents of a few tacit "grammatical" rules explain the limits of chess players' thoughts (Saariluoma, 1995). This means that information content can explain the phenomenon of limited searching or more broadly, the difference between senseless brute searching and relevance-based human thinking.

Expertise can thus be used to study mental content (Fodor, 1992; Saariluoma, 1990). Historically, mental content has mainly been discussed after Kant (1781/1976) by phenomenologists (Husserl, 1901−2). However, from a psychological perspective, phenomenological research has been subjective and therefore, introspectionist. Experimental psychologists have seldom adopted the works of phenomenologists (Watson, 1918). Yet, one could analyse mental contents from a third-person perspective by studying the contents of human speech and verbal behaviour. This stance has often been called the *heterophenomenological analysis of consciousness*, (or a third person view to experience) (Dennett, 1993; Ericsson & Simon, 1984; Newell & Simon, 1972). In clinical psychology, researchers have done a lot of work over the years to develop paradigms for investigating conscious and subconscious mental content (Ellenberger, 1970).

A good example of third-person studies in conscious experience is a protocol analysis of human problem-solving processes (Duncker, 1945; de Groot, 1965; Ericsson & Simon, 1984; Saariluoma, 1995). Our main idea is that the psychological analysis and argumentation concerning human action or mental representations and pursuing to explain phenomena related to them should be based on the properties of mental content or information content in mental representations. Unlike many schemas, production systems associative networks, and mental model-based studies (Anderson, 1983; Fodor, 1992; Johnson-Laird & Byrne, 1991; Neisser, 1976; Newell & Simon, 1972), we want to build our arguments on the contents of mental representations expressed in subject protocols.

Instead of arguing that the number of schemas or mental models in the minds of people explain that people make errors, for example (Johnson-Laird & Byrne, 1991), one can also call (as we do here) attention to the information contents of the schemas or mental models. One can empirically argue that people have incorrect or biased mental contents that explains why they err. The two ways of looking mental models are not contradictor but complementary (Saariluoma, 2001). We take information contents of mental representations in a concrete manner and analyse mind and explain given psychological phenomena on the grounds of the *contents* of mental contents.

The main empirical problem will be to study how the mental contents and the process of becoming conscious of a phenomenon (or seeing something as something) differ between expertise groups (Saariluoma, 2001). Instead of presenting a specific hypothesis here, we want to proceed in line with Glaser and Strauss's (1967) grounded theory. Protocols can give us an understanding of how information content in disparate groups works (Duncker, 1945; de Groot, 1965; Ericsson & Simon, 1984). We simply ask: what are the similarities and differences in the representational contents in which people with various expertise experience works of art? Can experts become conscious of something that novices are not able to represent or consciously experience?

The main characteristics of our approach to the contents of experience are outlined as follows. First, we aim to study the effects of learning on the interaction with the environment. This can be achieved by studying the effects of expertise on experience. Second, we collect protocols providing information about the contents of experiences (Newell & Simon, 1972; Saariluoma, 1995). Third, we define the phenomena to be explained and finally, explicate explanatory features of mental contents in protocols.

Our *content-based* approach has common ground points with information processing systems (Newell & Simon, 1972), production systems (Anderson, 1983), schema theories (Neisser, 1976), RTM (Fodor, 1992) and 4E (Clark, 2012; Johnson, 2015). These approaches begin with the idea that people represent world in their minds. However, our thinking is different as we take one step forward. Instead of focusing our argumentation on information on general levels, i.e., information as information, we base our thinking on the contents of represented information, i.e., mental contents. Our analysis of data is based on contents of information in protocols and thus also in mental representations. Moreover, we ground our arguments and explanations on the properties of these information contents. On these grounds we call our approach *content-based cognitive science or content-based psychology*.

## 2. Methods

Expertise is always domain-specific. Here, our chosen domain is art (Combrich, 1989; Solso, 1996). We study how experts and educated laypeople diverge in their thinking. Our focus will be the fluctuation in contents and expertise-based distinctions when subjects relate what they experience in looking at graffiti art.

### 2.1. Participants

In the experiment, the participants thought aloud about their perceptions of four graffiti and one mural. N = 19 participants (8 female, 11 male; age range: 13–63, mean age: 36.6 years) were recruited using an ad on the Demolition Art Project (2020) Facebook page and flyers posted on the research location walls in Kerava. All participants were voluntary subjects, and all of them gave verbal consent. Participants were compensated with one movie theatre ticket for their participation.

### 2.2. Methods

Before the experiment, the participants were asked to describe their knowledge of and possible active participation with graffiti and street art, and their levels of expertise in graffiti were assessed on a scale of one to four: 1) does not know anything about graffiti (N = 3); 2) knows little about graffiti (N = 4); 3) knows something or a lot about graffiti but does not do graffiti (N = 4); and 4) knows a lot about graffiti and does graffiti (N = 8). Laypeople were described as those with scores of one or two, and those with scores of four formed the group of experts. Two participants with scores of three were classified as laypeople, and two were classified as experts based on their knowledge and past experiences with

graffiti. Finally, there were two groups: *laypeople* (N = 9) and *experts* (N = 10). Here, experts did not have to have experience with actively producing graffiti because just like art critics, they might still have an adequate understanding of the technical and procedural skills and knowledge that are required to produce graffiti (Collins & Evans, 2007).

### 2.3. Materials and procedure

The experiment was held from July to August 2016. Several graffiti and murals were painted inside and outside of the building during the Demolition Art Project (2020). The number of participants was limited because the exhibition (research material) was only available for a limited amount of time. Participants used a handheld audio recording device to record their thinking-aloud during the experiment. All assessed works were inside the Petteri main building and were located within approximately 50 m (walking distance) of each other. Four graffiti works and one mural, representative of a variety of styles, from round or angular letters to works with representative characters, were selected by the researcher in order to produce observable distinctions as well as coherence in the participants' assessments. An example of the graffiti stimulus is presented in Fig. 1.

Some participants had seen at least part of the works before, but for some, they were completely new.

The experimental design was a within-subjects design that included semi-structured interviews. Each participant was individually interviewed. After their expertise in graffiti was assessed, participants were instructed to say anything that came to mind. After the instructions, the experimenter walked with the participant to the first selected work and asked the following interview questions:

1. What kinds of thoughts does the work evoke?
2. What kinds of emotions does the work evoke?
3. What kinds of meanings or stories do the work evoke?
4. Is the work beautiful, ugly, or something else?
5. What about the work's style and colours?
6. What draws attention in the work?
7. Where can you imagine the work to be located?
8. Is the work art?

All participants were presented with the same five works in the same order and asked the same interview questions at each work.

## 3. Results and discussion

In order to give readers a good understanding of the different types of mental contents, we present the qualitative aspects of the results and then investigate the quantifiable differences between the subject groups.

### 3.1. Basics of analysis

The thinking-aloud audio recordings were transcribed into text for the data analysis. Data were analysed using a mixture of thematic analysis and content analysis (*applied thematic analysis*), which is a synthesis of different techniques (Glaser & Strauss, 1967; Guest et al., 2012). While thematic analysis provides a technique that aims to preserve the deeper meaning within the discourse in the analysed text, content analysis provides a means to extract quantifiable and structured data and ensure higher objectivity towards the analysed text (Guest et al., 2012). Data were analysed using Microsoft Excel Version 16.41 software and IBM SPSS Statistics Version 26 software.

The data analysis for content categories and high-level themes included four phases. During the first phase, initial categories, themes, and their recording units as codes were defined. Words, phrases, and idioms that participants used to describe the mental content while viewing the selected artworks and that constituted semantic units as codes for categories were recorded. Semantic units were understood as conceptual units that consist of either single words or longer phrases depending on the analysed block of text. One sentence may include multiple semantic units, or several sentences may include just one semantic unit. The analysis is based on direct verbalised statements in protocols, not a researcher's reviewed interpretations of them (see e.g., Ericsson & Simon, 1993). This technique is appropriate for the research question: What types and how much of content can be found in protocols when participants of various expertise experience graffiti art? It is also important that the researcher who develops the coding has at least a rudimentary knowledge about graffiti (i.e., its culture, practices, techniques, and special vocabulary). The same word or phrase may mean

**Fig. 1.** An example of graffiti stimulus used in study.

different things in different contexts and for speakers with different backgrounds, there may be slang words or expert terms, subcultural references etc., so the researcher needs to know beforehand whether the protocol is given by a layperson or a graffiti expert to code and categorise protocols more correctly.

During the second phase of the analysis, the initial categorisation was critically evaluated and reconstructed as needed. In total, 4010 (1664 laypeople and 2346 experts) semantic units were coded from the data. This phase resulted in 30 types of content. Following ideas by Saariluoma (1990, 2005), Kuuva (2007) proposes that mental content in art experience can be divided into perceivable and non-perceivable content. Perceivable content includes semantic units of content that are about directly sensorily perceivable and emotionally felt content (Kuuva, 2007; Saariluoma, 1990, 2005). The second type of content includes learned conceptual information, emotional schemes, and mental models, for example, in the form of facts, analogies, and imagined meanings. These contents are not representable as sensory information (i.e., they could be non-perceivable) (Kuuva, 2007; Saariluoma, 1990, 2005). We used a similar type of categorisation that was used by Kuuva (2007) and divided the 30 produced types of mental content into two categories:

- *perceivable content:* background, characters, colours, emotions, faces, movement, shapes and forms, size, three-dimensionality
- *non-perceivable content:* analogies, artist's style, composition, cultural knowledge, graffiti artist, ideation, interest, letters, meaning for artist, meaning for laypeople, meaning for subculture, reading, skills, style, subjective ideation, subjective taste, subjective technique and doing, technical quality, technique and doing, tools, aesthetic value.

Because art experts are assumed to have acquired larger amounts and more complex non-perceivable knowledge and skills related to their specialised domain than laypeople (Collins & Evans, 2007; Kuuva, 2007; Stokes, 2014), it may be assumed that also in the case of graffiti art, people who have a lot of experience or knowledge related to graffiti possess more non-perceivable content about graffiti than laypeople. First, the protocol material was analysed using qualitative analysis to investigate mental content as distinct information types and structures in the conscious experience of laypeople and experts. Then, the mental content was analysed using quantitative methods to investigate whether there were statistically significant differences in the number of contents in different categories and the levels of expertise between laypeople and experts.

### 3.2. Qualitative analysis of information types

#### 3.2.1. Immediately perceivable perceptions and emotions

Contents were categorised as perceivable or non-perceivable with 30 subcategories. However, protocols call further attention to distinct types of information content-wise. First, one can find references to phenomena that people can emotionally experience (Table 1).

In these examples, information content concerns immediate emotional experiences. They can be divided into basic attributes of emotional experience, that is, emotional intensity, emotional theme, valence, and action or motivation-related emotions or interests (Myllylä, 2020; Saariluoma, 2020). *Immediate* means what is present at this moment.

**Table 1**
Examples of immediate emotional encoding in protocols.

| Emotions | Emotion contents | Examples |
|---|---|---|
| *Descriptions related to felt emotions* | Intensity | e.g., "very", "something emotional" |
| | Theme | e.g., "joy," "excitement," "gloomy," |
| | Valence | "good," "bad," "neutral" |
| | Emotional motivation | Interest, e.g., "interesting," "boring," "I would like to know more" |

The second important content type is directly perceived information content. One can say that immediate perceptual information content in protocols are features that, during the study of an artwork, can be received sensorily by spectators. Typical examples of perceived content are shapes, colours, directions, movements, objects, groups, and so on (Table 2).

Perceptual features or in philosophical terms, *sense data* or *perceptual qualia* (Aristotle, 1984, pp. 641–692; Russell, 1917), are elementary content in immediate perceptions. Examples in the present study are shapes and forms, colours, three dimensionality, size, movement, and objects, such as faces and composition.

#### 3.2.2. Non-perceivable kinds

The two types of expressions are very keenly associated with the artwork and sensory emotional experiences related to the presented artwork. Our analysis led us to a new kind of expression, which is directly linked not to the artwork but rather, to what occupied the minds of the spectators before they saw the artwork. Thus, they are content that is not directly dependent on the stimuli.

Not every description of subjects' experiences had content that was visible. These expressions were remembrances, concepts, facts, and sociocultural content, also known as *knowledge content* (Table 3).

Spectators also created associations between the works and different cognitive and emotional models or schemas. These diverged from direct, primitive emotions and were non-perceivable contents construed by apperception. These types of content are referred to as *cognitive* and *emotional schemas* (Table 4).

Finally, a new type of expression was found. Instead of being static and based on primary or secondary representations (i.e., immediately represented emotions and perceptions or apperceived representations from knowledge or schemas), these remarks reflected changes in the information content of mental representations (Table 5).

The tables illustrate three types of becoming conscious. They are perceptual (Tables 1 and 2), apperceptive (Tables 3 and 4), and restructuring type of becoming conscious (Table 5)

### 3.3. Quantitative analysis of mental content

#### 3.3.1. Mean frequencies of the content categories found in laypeople and experts

The mean values of the frequencies of perceivable and non-perceivable kinds of content categories in protocols of laypeople and experts are shown in Fig. 2.

A two-way factorial ANOVA was conducted on mean frequencies of the two types of mental content in participant protocols for two categories of contents (perceivable and non-perceivable contents) and for

**Table 2**
Examples of directly perceived content in protocols.

| Perceptual properties | Perceived contents | Examples |
|---|---|---|
| *Perceivable visual properties of the work* | Three-dimensionality | e.g., "three-dimensional," "depth," "shadows" |
| | Characters | e.g., "a creature," "a parrot," "hands" |
| | Colours | e.g., "candy colours," "yellow," "bright" |
| | Composition | e.g., "composition," "balanced," "proportions" |
| | Facial features | e.g., "faces," "eyes," "human gaze" |
| | Movement | e.g., "going in the same direction," "dynamic," "flying" |
| | Shapes and forms | e.g., "pattern," "stars," "geometric" |
| | Size | e.g., "small," "massive," "10 m wide" |

**Table 3**
Examples of non-perceivable knowledge content in protocols.

| Knowledge | Knowledge content | Example |
|---|---|---|
| *Learned concepts and personal experiences about subcultural artefacts, special terminology and semantic codes, beliefs, values and norms, sociohistorical stories and locations, information about artists, and styles as formal genres and conventions* | Cultural knowledge and life experiences | e.g., "Graffiti is, at its basis, a thing that is made by men," "Pasila gallery". |
| | Graffiti artist | e.g., "The maker of this work apparently won the graffiti Finnish Championship competition this year," "he paints a lot," and "the artist is a woman" |
| | Graffiti artist's style | e.g., "very typical work for its artist," "you can recognise immediately from the style who has made it," and "own twist" |
| | Letters | e.g., "the middle letter," "m and k," "symbols" |
| | Reading | e.g., "it says, 'raw deal,'" "it reads something" |
| | Style | e.g., "abstract," "old-school piece," "Finnish wild style" |
| | Analogies to facts | e.g., "*Giger* type of art," "*Blade Runner*," "*Ghostbusters*" |

**Table 4**
Examples of non-perceivable cognitive and emotional schemas in protocols.

| Cognitive and emotional schemas | Non-artist/Laypeople | Artist/Expert |
|---|---|---|
| | "The orange background colour gives a joyful and perky impression. The character looks very amusing. The text part does not open up in any way."<br>"This is also a bit mystical; I feel that would be some bad guy. Those eyes remind me of that, or when the upper part of the face is dark. Evil ambiance, not of the artwork, but because that guy is evil." | "It is beautiful. It is also a bit dangerous when I don't know what they are, a bit threatening. I don't know what they represent. That it is for sure always in the viewer's… that there is that space and those space tentacles. It is something living, something organic."<br>"This conveys more that kind of mystical and exciting ambiance. The ambiance is a bit between these two previous ones. There is mysticality but also childishness and that kind of, how do I put it? Good mood environment beautification. |

two levels of expertise (laypeople, experts). There was a significant main effect of the level of expertise on frequencies of mental contents, $F(1, 34) = 4.84$, $p = .035$. There was a significant main effect of the categories of contents on frequencies of mental contents, $F(1, 34) = 27.29$, $p < .001$. There was a significant interaction between the level of expertise and the categories of contents, on frequencies of mental contents, $F(1, 34) = 5.71$, $p = .023$. This effect indicates that the perceivable type of contents and non-perceivable type of contents were affected differently by the level of expertise. This means that experts encode perceivable mental content similarly to novices but they encode non-perceivable information much better than laypeople.

An independent *t*-test was conducted on the mean of frequencies of perceivable content and on non-perceivable mental content of laypeople and experts. The results indicate that on average, laypeople had slightly more perceivable content ($M = 76.44$, $SE = 8.64$) than experts ($M = 74.30$, $SE = 5.54$). However, this difference, 2.14, 95% CI [−18.61, 20.06] was not significant $t(17) = 0.21$, $p = .834$. In case of non-perceivable content, the results indicate that on average, experts had more non-perceivable content ($M = 160.30$, $SE = 16.09$), than laypeople ($M = 108.44$, $SE = 11.59$). This difference, −51.86, 95% CI [−88.00, −13.90] was significant $t(17) = -2.56$, $p = .020$.

**Table 5**
Examples of changes in the information content of mental representations in protocols.

| Changes in the information content of mental representations | Non-artist/Laypeople | Artist/Expert |
|---|---|---|
| | "Also, when I think about what the idea is here, what these things here are, it maybe makes me look at this more carefully. When walking by, one may notice the colouring first; then one may start to think what it is that is wanted to be said here and what this represents."<br>"There is for sure some story in this because at least for me, it immediately comes to my mind that a story goes from one side to another. That would instantly create some meaning for me, not straight away, but I would like to look at this for longer and think about what that story is, what the artist has tried to tell, and… what it could tell me. Quite interesting." | "I appreciate that somebody can make those kinds, even though I myself cannot make that kind, and I am not familiar with that, a bit trivial. It is quite nice to look at that kind. I might not have been able to look at this if I hadn't stopped now to analyse this. It takes time to read up on this. That may be a rose… It probably is not a rose."<br>"When we are in some space and there are many works in the same place, this is completely different and a different world than those others. One has to sigh and stop. The first one was easy to look at. It smiled at me, but this requires a lot of concentration." |

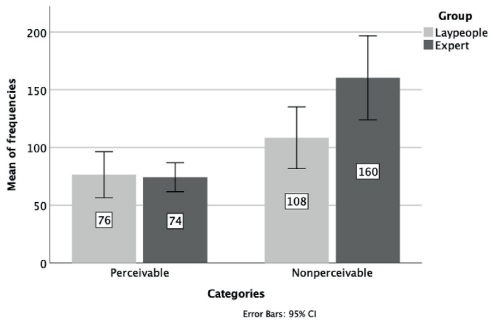


**Fig. 2.** The mean values of the frequencies for the two categories of mental content (perceivable and non-perceivable) in laypeople and experts.

An independent *t*-test was also conducted for the 30 different types of mental contents to analyse whether there were statistically significant differences between the means of the frequencies of each type of content in laypeople and experts. The results indicate that on average, there were significant differences in means for six mental content types (*artist's style*, *graffiti artist*, *letters*, *style*, *subjective technique* and *technique)*. These statistically significant differences between the means of six mental content types in laypeople and experts are presented in Table 6.

## 4. Discussion of results

Protocols have traditionally been seen as descriptions of mental contents (Ericsson & Simon, 1984, pp. 50–52). Of course, spoken content does not provide an exhaustive description of mental representations; nonetheless, it is the best representation of mental contents. Here, we use the analysis of mental contents to separate types of content

**Table 6**
Results for independent t-tests indicate that there are statistically significant differences between the means of mental content types in laypeople and experts in six content subcategories.

| Mental content | Laypeople ($N = 9$) | | Experts ($N = 10$) | | Statistical significance | | | |
|---|---|---|---|---|---|---|---|---|
| | *M* | *SE* | *M* | *SE* | Mean difference | 95% CI | *t*(17) | *p* |
| Artist's style | 1.44 | 0.63 | 7.80 | 1.24 | −6.36 | [-8.87, −3.69] | −4.43 | <.001 |
| Graffiti Artist | 0.89 | 0.46 | 5.10 | 1.54 | −4.21 | [-7.65, −1.50] | −2.50 | .023 |
| Letters | 3.89 | 0.98 | 10.90 | 2.03 | −7.01 | [-11.34, −2.97] | −3.00 | .008 |
| Style | 11.33 | 1.70 | 20.40 | 3.25 | −9.07 | [-16.67, −2.33] | −2.39 | .029 |
| Subjective Technique | 0.56 | 0.38 | 4.10 | 1.49 | −3.54 | [-6.94, −0.14] | −2.20 | .042 |
| Technique | 6.44 | 0.80 | 11.20 | 1.44 | −4.76 | [-8.14, −1.94] | −2.80 | .012 |

elements and to get a clearer picture of how people can have the kinds of mental content they have and be conscious of the kinds of things these contents are.

In the presented data, the first psychologically relevant type of mental content is emotional information. Joy, fun, and excitement were typical contents expressed by participants when they looked at certain works, whereas some works evoked emotional information such as mysticality, danger, and awe (Myllylä, 2020). It is also possible to classify subtypes of emotions such as themes (gloomy, admiration), intensity (neutral, very), valence (good, bad), and analogical or metaphorical modelling (robot-like, childish). Emotional evaluation is also similar to motivation or conation (interesting) and aesthetic analysis (magnificent).

Besides emotional content, subjects had a lot of cognitive content in their protocols. They first presented directly perceivable things. They referred to colours and forms that were directly visible (red, dark). They also referred to shapes, sizes, movements (going in the same direction), and forms (geometric, lines).

Emotional and perceptual information processing can be immediate experiences. What we mean by immediate does not mean that this type of information appears first chronologically in the experience; rather, it is present at the surface level of the experience. After noting the immediate elements of experiences, a researcher can pay attention to the protocol elements, which entail meanings and cultural patterns that exist within another level of experience but may appear within the experience at the same time as the direct information. Meaning can be associated with oneself, artists, spectators or cultures, and technical practices (Myllylä, 2021).

A direct representation of the perceivable world can be called a "primary representation." In our empirical material, primary representation entails materials that people can directly perceive, that is, materials that have representations on sensory surfaces (cf. e.g., Gibson, 1979; Neisser, 1976). Subjects also have secondary representations that entail emotional remembrances, meanings, conceptual, and memory content. The contents of secondary representation can have perceptual elements in interpreted forms such as "this is street art," "this is typical for its painter," or "has for sure planned this,", or unperceivable mental contents, such as electrons, infinite, eternity, "futuristic," (i.e., abstract things one cannot perceive) (Saariluoma, 1999; Thagard, 2012). They are memory information-enriched comments and conceptually concern what is perceived.

It is important to address one additional aspect of protocols: transitions from one content to another. The transformations of encoded representations, or *insight*, are consequences of human thinking. People learn to modify their representations with new information content (Fisher, 1998).

In our empirical study, we found that both laypeople and experts had similar types of mental contents, but the *amount* of these contents varied. All people are immediately connected to the surface of reality by their perceptions in somewhat similar ways, but as people gain expertise in a domain (in this case, graffiti), they also gain more non-perceptual information content about that domain, which is present in their mental representations in conscious experiences.

On summarising the interpretation of empirical results, we can claim that the contents of mental representations are encoded in two states. First, perceptual and emotional systems provide immediate information about objects. Second, conceptual and memory systems enrich perceptual representations or generate images or conceptual contents with no direct link to any perceptual information. The constructed secondary representations are transformed by thinking. This can be seen as a result of what may be called, in Piaget's (1999) terms, *formal thought operations* or metacognitive "*thinking about thinking*" (Fisher, 1998), like reflexive thinking or metamentation (Bogdan, 2000) and reflective consciousness (Revonsuo, 2010). Reflection can create new representations with new information content.

The analysis leads to a three-process model for investigating how people can become conscious of a phenomenon. A three-process model for "becoming conscious of" is presented in Fig. 3.

First, perceptual operations associate people with the external environment. This information is represented on sensory receptor surfaces. Second, memory information, concepts, and learned emotional schemas and mental models give non-perceptual and non-perceivable information content that enriches interpreted information content in mental representations. Finally, thinking modifies apperceived representations into new forms, introducing new ways of experiencing the external world. *Restructuring* and insight are traditional names for transformations of information content in mental representations (Duncker, 1945; Gick & Holyoak, 1980; Köhler, 1957; Saariluoma, 1995; Wertheimer, 1945).

Our results suggest that there are three kinds of processes in

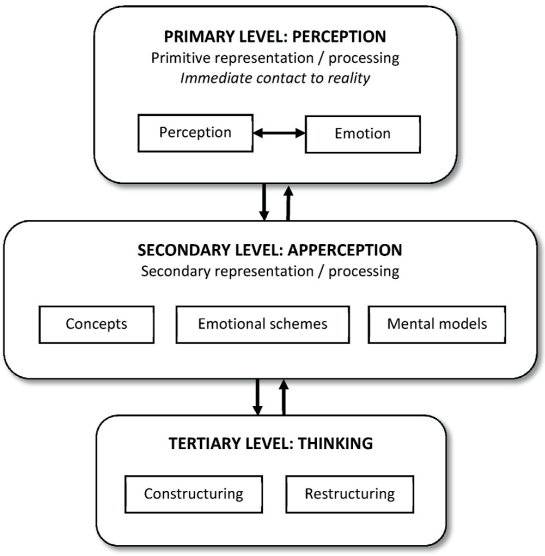


**Fig. 3.** A three-process model for "becoming conscious of".

becoming conscious. First, there is immediate emotional and perceptual encoding, called *perception*. Second, there is the enrichment process, in which inborn and learned concepts enrich information into experienced information content. This process, we call *apperception* (Husserl, 1901–2; Kant, 1781/1976; Stout, 1896). Finally, restructuring processes enable people to reorganise their conceptions into new ones and to become conscious of restructured mental content.

## 5. General discussion

The problem of *becoming conscious of something* opens its own perspective into the human mind. Knowing something about something is an issue concerning mental content. One cannot be conscious unless one is conscious about something, and this something is information content in the mind. For example, people have for centuries looked how masts arise before the ships over the horizon, but only in the 16th century they have become conscious of the role of the form of earth in understanding the phenomenon (Hanson, 1958; Wertheimer, 1945). Thus, investigating becoming conscious of is worth effort as it opens the way to the psychology of innovation.

To analyse the problem of becoming conscious, it is essential to take a new metascientific point of view and study the basic concepts and the explanatory grounds used in the research in consciousness and conscious experiences. Thus, to outline the main novelty of content-based psychological thinking, we briefly overview some related ways of approaching mind.

A great deal of modern cognitive psychology and science is based on idea that people are limited capacity information processing systems (Anderson, 1983; Broadbent, 1958; Johnson-Laird & Byrne, 1991; Miller, 1956; Newell & Simon, 1972; Saariluoma, 1997). Consequently, explaining various issues, such as failures in human action, is grounded on the idea that tasks' demands surpass the limits of human information processing (e.g., attention or working memory) (Saariluoma, 1997). However, our approach deviates essentially from the tradition in this regard. Instead of limited capacity, we base our analysis on the information content of mental representations or mental contents (Saariluoma, 1992). It is essential here to understand the difference between content-based thinking and capacity-based thinking.

In our research, we empirically found three mental processes of becoming conscious. The first was the processing of emotional-perceptual consciousness, characterised by emotional and sensory representational content and direct contact with the perceived environment. This is the level of immediate and stimulus-dependent encoding. Second, mental representations had information content that could not be perceived at all. This is why it makes sense, when analysing mental content, to differentiate perception from apperception (Husserl, 1901–2; Kant, 1781/1976; Saariluoma, 1990, 1995; Stout, 1896). Perceptual content is available to all but conceptual encodings require learned information.

Finally, the information contents of mental representations in the study were dynamic. People represent the world and stimuli in one way in a given moment and in another way at a different moment. The change from one representational content to another always means a change from becoming conscious of something to becoming conscious of another thing. It often also means a change from one emotional state to another. When analysing mental content, we suggested the three-process model of becoming conscious of information content.

However, our ultimate goal was to investigate how becoming conscious of could be studied in modern psychology and cognitive science. Intuitively, becoming conscious of is one of the most common events in the human mental process. It is present all the time in human information processing. For this reason, it made sense to specifically study the conceptual foundations of this type of research.

There is a great deal of documentary material in which one can see how different people experience works of art. They can mostly be classified as art history or interpretations of works of art (e.g., Hagen and Hagen, 2003). From a cognitive scientific and psychological perspective, different analyses normally illustrate what kinds of information content people have experienced and become conscious of. Our work has focused on an empirical analysis of the kinds of mental contents and processes that are typical for encoding and experiencing works of art and in a broader sense, any information in one's environment. A similar pattern can also be found in chess expertise (Saariluoma, 1990).

In the philosophy and psychology of the mind, mental contents have been discussed among phenomenologists (Husserl, 1901–2) and analytic language philosophers such as Wittgenstein (1953), Austin (1975), and other ordinary language philosophers (Passmore, 1957; Ryle, 1949; Wisdom, 1956). More recently, Fodor (1992) and others have highlighted mental content and the analysis of representations (Crane, 1992, 2014; Lowe, 2000; McGinn, 1989; Peacocke, 2014; Thomas, 1999; Tye, 2000). Mental content in experience has also been a topic in more recent scholarly discussions (Chalmers, 2010; Egan, 2014; MacPherson, 2011, 2012; Montague, 2016; O'Brien, 2009; Siegel, 2017). However, one cannot say that mental contents would have belonged more to the mainstream cognitive analysis of the mind compared to capacity-based thinking (Saariluoma, 1995, 1997).

In clinical psychology, the contents of mental contents have been studied occasionally. Freud (1917/2000) made a difference between libido, I (Ich), and super I (Ueber Ich). Jung (1991) discussed such content-oriented phenomena as life world (Lebenswelt) and archetypes. Beck (1975) also noted the role of negative mental contents in depression. These are all examples of investigating the mind in terms of mental contents. Moreover, in developmental psychology, Piaget (1970) used important differences between accommodation and assimilation or moral analysis on properties of contents. Newell and Simon (1972) spoke of content-oriented thinking in simulating human thinking. In addition, the psychologists of thinking, such as Köhler (1917/1957) and Kahnemann (2011) studied restructuring and reflective processing (see also Duncker, 1945; Saariluoma, 1995; Wertheimer, 1945). Nevertheless, it has not been common to extensively base the analysis of mind and actions on the properties of mental contents.

One important explanatory ground for consciousness research has been introduced by biology and neuroscience (Chalmers, 1995, 2010; Revonsuo, 2010). Consciousness research is linked to the neural analysis of representations, which is a necessary condition for the mental representation of information content (Rolls, 2000; Swaab, 2014). There are no mental contents that can exist outside the nervous system. Neural processes should not be considered free from content either. Evidently, many neural sub-systems, such as colour vision, are content specific and specific to some aspects of mental content (Allport, 1980; Minsky, 1986; Tononi & Koch, 2015; Tononi et al., 2016). Indeed, one can speak about content-specific neural modules or faculties (Allport, 1980; Fodor, 1983; Minsky, 1986).

However, neural processes cannot effectively and exhaustively explain phenomena such as information contents in mental representations. The analysis of experts' thinking shows that mental contents are learned. For example, being able to encode green colour in a painting does not mean that one would know why and what kinds of greens van Gogh used or why he used a particular green in a particular painting. Neural theories can clarify necessary conditions for mental contents and people's representations with disparate contents, but they do not provide an understanding of why people have mental contents and what kinds of mental contents they have (Saariluoma, 1999).

Finally, 4E cognition (embodied, embedded, enactive and extended) (Clark, 2012; Johnson, 2015; Newen et al., 2018) is still another approach, which is partly overlapping with our thinking. However, in this manifold approach the focus is not in the contents of information people rely on in their action. Thus, our thinking is different from 4E as our way of thinking is focused on the contents of mental contents.

The main problem in using neural concepts to investigate representational information contents in the mind is the necessary openness and modifiability of the brain as a system. The brain must be able to learn the

contents required in different actions. Chess players' knowledge of chess is different in content from artists' knowledge of art. The mental contents of such differences cannot be studied at the brain level as chess players and artists have different learning and life histories, which make their expertise different. The differences are manifested in the contents of learned information, not in the learning brains. The analysis of the mind, which is based on the analysis of mental contents, can be called *the content-based cognitive science or content-based psychology* (Saariluoma, 1997, 1999, 2001).

We have, in this paper highlighted the notion and phenomenon of mental content as an analytical and explanatory category in investigating the phenomenon of becoming conscious of. The analysis and explanation of human actions based on representational or mental contents introduces a new way of examining consciousness. The properties of mental contents (i.e., the information contents in mental representations) form the starting point for content-based thinking. Instead of discussing the contents of mental representations on a general level in schemes, priming, mental models, or productions, we have focused on the properties of contents in protocols to highlight the three-process model of becoming conscious. Hence, differently from the earlier representational theories (e.g., Allport, 1980; Fodor, 1992; Rescorla, 2020), we have studied "contents as contents." One could characterize our approach as content-based referring to the idea of explaining human actions on the ground of properties of information or basing the explanation on the contents of information contents in mental representations.

## Author statement

**Mari Myllylä:** Conceptualization, Methodology, Formal Analysis, Investigation, Writing of the Manuscript, Visualization. **Pertti Saariluoma:** Conceptualization, Methodology, Writing of the Manuscript. This is an equal authorship paper.

## Declaration of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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