In Focus

Lived Experience in the "Naturalistic" Paradigm: Implementing Empirical Phenomenology with Expert Participants for Neurocinematics

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JELENA ROSIC, Aalto University, Finland; e-mail: rosicorama@gmail.com

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ABSTRACT

When studying subjective reports in neuroscience, data that are more easily quantifiable understandably hold more appeal due to the methodological complexities involved with in-depth approaches (second-person interview techniques and analyses) that require extended training of a researcher but also epistemological regard for the problem. A methodological direction for neurocinematics that could better capture the complexities inherent in the experience of film-viewing is to treat distinct domains of the neurocinematic phenomenon, the film stimuli, related subjective accounts, and their neural correlates as co-constitutive in the data analysis. The present proposal outlines an empirical phenomenology approach in the naturalistic paradigm with film stimuli building on the neurophenomenological ideas of pragmatically approaching the relationship between neurocognitive processes and phenomenological accounts. Using the micro-phenomenological method as a guide, i.e. non-naïve introspection ("becoming aware") with a trained interviewer, the objective is to emphasize the process of accessing lived experiences for systematic second-person investigations. Such in-depth subjective reports have the potential to yield fine-grained descriptions of the participants' experience related to (free) viewing of films as opposed to relying on naïve introspections ("just ask") or easily quantifiable assessments that lack complexity ("just look") and are prone to bias due to the simplification of experience. Building up a case for empirical phenomenology through the methodological demands of its framework, the illustration of the micro-phenomenological method serves to underscore the non-trivial nature of accessing and reporting experience and its role in the neurocognitive domain.

KEYWORDS: neurocinematics, naturalistic neuroscience, empirical phenomenology, micro-phenomenology, film experts

> *"It is not enough to simply say, oh, I'll just look. Because when you just look, in fact, you pretend to be an expert of something which you've never done. As if by listening to sounds, you would be automatically a musician. Or by having a body, you would be a doctor. That, of course, is nonsense."*
> Francisco Varela, MIT lecture[1]

Using films as stimuli, the study field of neurocinematics (Hasson et al. 2008, 2012) aims to increase ecological validity in neuroimaging paradigms (therefore "naturalistic") (for review, see Jääskeläinen et al. 2021) by observing brain activity during film viewing. From its very inception, this field has been operating under the assumption that films can control the minds of the viewers, i.e. predict high correlation among study subjects (e.g. ISC), to some extent undermining the dynamic relationship between film stimuli and the viewers' minds (Poulaki 2014). Such a unidirectional model of perception disregards cases that might truly account for the complexity of film viewing (i.e. noisy data). Underscoring the very principles of the dynamic systems, a different relationship would need to consider that "the reaction of the brain to film stimuli is not instant but cumulative and emergent, just like the cognitive organization itself" (Poulaki 2014: 10). These important methodological issues of how to deal with the variability in the brain data then call for establishing a different model of stimulus–viewer relationship.

The research program of neurophenomenology (Varela 1996) was originally aimed at pragmatically approaching the relationship between neurocognitive processes and their subjective or phenomenal manifestation. The type of circulation between phenomenal accounts and their neurobiological counterparts can establish various kinds of relationship that differently satisfy the idea of mutual constraining (i.e. isomorphism, generative passages in Roy et al. 1999; Lutz 2002; Ramstead et al. 2022).

One method to establish the constraints for neuroimaging analysis while preserving ecological setup and naturalistic stimuli is to use first-person phenomenological data of the viewer's subjective experiences. If collected systematically (elaborated further in the text), such insights can inform either experimental designs or interpretation of the results. Moreover, while events and people depicted in films used as stimuli may resemble the natural world, films are nonetheless constructed artifacts (Fingerhut 2021; Fingerhut, Heimann 2022). A methodological direction for neurocinematics that could better capture the complexities inherent in the experience of film viewing is to approach distinct domains of the neurocinematic phenomenon, the film stimuli, related subjective accounts, and their neural correlates as co-constitutive (see enactive narrative systems, or enactive media systems, Tikka, Kaipainen 2014). The focus being solely on the brain data while leaving the viewer's lived experiences understudied in a systematic manner is one of the major shortcomings in the naturalistic neuroscience paradigm and neurocinematics for understanding cognition in a more ecologically valid manner. While there is rather detailed information about the dynamics of the brain, the methods for collecting and analyzing information about the actual lived experience of each individual that correlates with observed brain activations are to a great extent ignored.

ACCESSING EXPERIENCE VS. DESCRIBING THE CONTENT OF THE STIMULI

The study of experience has historically encountered arguments against the very possibility of observing one's lived experience through introspection. Among many assumptions about the nature of subjective phenomena and the (im)possibilities of systematically using first-person reports as valid is the belief that subjective data imply dealing with purely private or

1 Francisco Varela, "Why a Science of Mind Implies the Transcendence of Nature" – *God and Computers: Minds, Machines, and Metaphysics* (A.I. Lab Lecture Series). Cambridge, MA: MIT Press.

ineffable experiences (Varela and Shear 1999; Roy et al. 1999). Accessing first-person reports through introspection was considered either impossible (private nature) or introducing distortion (fallibility of memory and recall distortion), yet Petitmengin and Bitbol (2009) argue that such objections are based on a limited understanding of the introspective process, as well as a naïve conception of scientific objectivity. The concerns raised about the validity and reliability of introspective reports as producing either overreporting or underreporting assume representationalist epistemology that implies the attitude of the objective and truthful reality of the stimulus and the resulting knowledge (Petitmengin, Bitbol 2013). This leads to a common mistake in denying the reliability of introspection and first-person descriptions that arises from conflating stimulus and experience. It involves mistakenly equating the content of the stimulus with the content of the experience triggered by the stimulus: "introspection does not consist of observing and describing stimuli (this interpretation is the beginner's mistake, that Titchener dubbed 'stimulus error'), but of observing and describing one's own experience of these stimuli" (Petitmengin, Bitbol 2009: 364).

Instead of indirect third-person observation and related inferences about mental states, first-person accounts serve to establish categories that are linked to the structure of lived experience with the methods that are focusing on "retrieving the precise spatio-temporal context, and then the visual, auditory, tactile, kinesthetic and possibly olfactory sensations associated with the experience to be described" (Petitmengin, Remillieux, Valenzuela-Moguillansky 2019: 694). This is the structure of experience as it was lived through with its embodied perspective and temporal dimension not an interpretation or generalization of a type of experience. It allows access to reporting from experience rather than citing the knowledge of the stimulus, i.e. "stimulus error."

SYSTEMATIC FIRST-PERSON RESEARCH AND DATA COMPLEXITY

By the systematic research of lived experience, what is meant here are not the typical psychological methods that collect responses to e.g. questionnaires with preconceived categories to serve mostly as control data in neurophysiological research. Therefore, when researching lived experience, clarification is needed on the different forms of first-person data collection and their complexity, which further presents issues for validity and reliability in research. The prevalent quantifiable data used to study subjective reports understandably hold more appeal due to the methodological complexities involved with in-depth approaches. These approaches, such as second-person interview techniques and analyses (Olivares et al. 2015), require extended training of a researcher but also epistemological regard for the problem of the formation of beliefs about experience and the value of such phenomenological data in scientific practice (Kordeš, Demšar 2018; Valenzuela-Moguillansky, Demšar 2023).

Even though widely accepted as verifiable, the quantifiable psychological approaches may as well undermine the very task of first-person research as they rely on "the assumption that we already know the structure of the experiential landscape" (Kordeš 2013: 369). What is meant by this is that when we apply these approaches we never question the adequacy of experiential categories imposed by the format of such methods. They also assume familiarity with one's own experience in reporting without any training or competence in accessing experience. Such data is "limited due to its reductive nature (using pre-defined rigid phenomenal invariants) which also makes it prone to biases" (Berkovich-Ohana et al. 2020), and is therefore seen as "thin" phenomenology based on complexity. Conversely, refined and detailed data obtained through in-depth phenomenological interview methods (such as micro-phenomenology (MP), Petitmengin 2006) are considered

"thick" phenomenology due to having a "high resolution [which] may permit the bridging of experiential and neural micro-dynamics (as proposed by Petitmengin and Lachaux 2013)" (Berkovich-Ohana et al. 2020). Improving data complexity and adequate categories of experience through in-depth methods can help to establish more suitable formal cognitive ontologies of mental functions for their neural counterparts (Gorgolewski et al. 2015; Poldrack 2006; Poldrack, Yarkoni 2016).

ACCESSING THE PRE-REFLECTIVE PART OF EXPERIENCE WITH THE SECOND-PERSON

In line with an embodied and enactive view of the mind (Varela, Thompson, Rosch 1991) and the initiation of the neurophenomenological program (Varela 1996), cognitive science has aimed at incorporating a systematic experience research within the framework of natural sciences (Froese, Gould, Barrett 2011; Petitmengin et al. 2013; Roy et al. 1999). Subjective reports of lived experience that are of interest here are characterized by the pre-verbal, pre-reflective, and affective mental states, events, and processes "which otherwise would remain unreflectively lived through – to become subjectively accessible and describable, and thus available for intersubjective and objective (biobehavioral) characterization" (Lutz, Thompson 2003: 37).

For an untrained person or an interviewee to successfully become aware of the dimension of experience that satisfies collecting phenomenological data of interest, a mediation by another person can provide a context for obtaining such experiential dimensions. In order to make first-person reports intersubjectively verifiable and allow identification of the phenomenal invariants that can be describable both across and within subjects and phenomena (Varela, Shear 1999; Lutz, Thompson 2003), second-person methods were developed as interview techniques for systematic and detailed subjective reports including non-verbal information (see Olivares et al. 2015). In order to avoid biases related to naïve, i.e. untrained introspection, a systematic phenomenological study requires certain pragmatics or a method of assessing the pre-reflective dimension of an experience (Petitmengin, Remillieux, Valenzuela-Moguillansky 2019). This pre-reflective character designates a large part of our cognitive processes that "unfolds below the threshold of consciousness. But it is possible to gain access to it thanks to very specific expertise that may be learned and perfected" (Petitmengin, Navarro, Le Van Quyen 2007: 747).

"JUST LOOK" VS. EMPIRICAL PHENOMENOLOGY

For a systematic analysis of lived experience, it is not sufficient to rely on subjective reports that assume that becoming aware of one's experience has immediate and easy access (Petitmengin, Navarro, Le Van Quyen 2007; Petitmengin 2010). The presupposition that uninitiated participants (i.e. not trained in introspective methods) may possess adequate competence in reflecting and describing their experience by "the simple fact of possessing a reflexive consciousness" leads to the descriptions that are as a consequence "poor in quality, overloaded with superfluous comments concerning the context and the circumstances, but almost vacuous when it comes to actual mental acts and the way in which lived experience unfolds" (Vermersch 2016: 391). Such an approach to accessing experience is what Varela refers to in the opening quote as "just look" or what is considered the "just ask" approach in mentioned *thin* attitudes to first-person reports.

Empirical phenomenology presents empirical research on lived experience where "empirical" is not equated with the requirements of the natural sciences (Kordeš 2016) but refers to its extended etymological meaning "*empeirikos*: who has the experience of" (Petitmengin 2009: 373). These methods consist of "systematic, meticulously recorded gathering of samples" and "designate specially dedicated techniques of gathering phenomenal data"

(distinct from "armchair introspection") (Kordeš 2016). Some principal methodological guidelines for empirical research on the structure of lived experience, or empirical phenomenology, can be summarized as follows: extensive training in the skill of introspection however non-naïve but guided by a second-person, iterative, and dialogic approach concerning interviews with participants with the focus being on the phenomena giving up interpretation, training to ask about and to describe the experience without classifying, theoretical frameworks or assessments about the "reality" of the observed phenomena (Kordeš 2013).

To illustrate the distinction between approaches, when a guided, i.e. non-naïve, introspection (second-person approach) is used to examine the case of choice blindness (being unaware of own choice), the results are significantly different. The study in question replicates the experiment of Nisbett and Wilson (1977) which is extensively quoted and interpreted as disputing the reliability of introspective reports. Namely, an in-depth interviewing method was performed in a repeated study (Petitmengin et al. 2013) reproducing the protocol in which participants were shown two face photographs and asked to choose the more attractive one (Johansson et al. 2005). Before the participants were asked to make an argument for their choice, the chosen photograph was replaced without the participant knowing. In the previous study without in-depth interviewing, this change of the picture was not detected in 79.6% of the cases, and participants provided an explanation of the choice they did not actually make. However, in a repeated study with in-depth interviewing, the participants were able to detect that their choice of a picture had been manipulated in 80% of the cases.

TOWARD MICRO-PHENOMENOLOGICAL INVESTIGATION OF EXPERIENCE

Following from the Husserlian tradition of phenomenological reduction, the general character of the examination of experience for co-constitutive analysis with neurophysiological processes entails the suspension of beliefs and previous notions to achieve new insights about the phenomenon (Varela 1996). Practicing the phenomenological method of *épochè* in order to become aware of the structural dynamics of experiences, as proposed by Depraz, Varela, and Vermersch (2000: 123), consists of gestures or phases in which (1) *suspension* of habitual beliefs and judgments is satisfied, (2) then attention is *redirected* from external content to inner mental acts, and finally (3) voluntary attending to perceptual process switches to the process of *letting-go* or letting things come into attention. Such gestures of "becoming aware" or "reflective acts" are not available in normal reflection and require training on engaging directly in describing the phenomena.

The MP method (Petitmengin 2006; Petitmengin, Remillieux, Valenzuela-Moguillansky 2019) is based on this phenomenological tradition of suspending the natural attitude toward the world. This sort of reduction regarding beliefs and theories about the experience is performed on two levels within the MP method. One is concerned with interviewing and guiding the participants to suspend the mentioned attitudes in reporting; the other is performed in the analysis of reports where the researcher again needs to apply reduction toward the aim of generalization of results (Petitmengin, Remillieux, Valenzuela-Moguillansky 2019; Valenzuela-Moguillansky, Vásquez-Rosati 2019). However, this generalizability is not equated to quantitative analysis but the double mode of reduction, or "double bracketing" (Gaete Celis 2019). This means that, while introducing differences from classical qualitative methods, MP reflects constructivist epistemology where the observer is an inherent part of the observed and cognition embodied and enacted through sensorimotor relation to experience (Gaete Celis 2019).

The present proposal outlines an empirical phenomenology approach in the naturalistic paradigm with film stimuli building on the examination of film experts'

experience (film professionals and film scholars). Using the MP method as a guided or non-naïve introspection ("becoming aware") with a trained interviewer, the objective is to emphasize the process of accessing lived experiences for systematic second-person investigations. Such in-depth subjective reports have the potential to yield fine-grained descriptions of the participants' experience related to (free) viewing of films as opposed to relying on "just ask" or "just look" approaches that may be prone to bias due to the simplification of experience. After building up a case for empirical phenomenology through the methodological demands of its framework, the illustration of the MP method presented serves to underscore the non-trivial nature of accessing and reporting experience.

BECOMING AWARE OF THE PRE-REFLECTIVE PART OF EXPERIENCE WITH THE MP METHOD

The process of becoming aware and describing or explicating lived experience through the second-person approach is not trivial ("just ask") for the interviewee or the interviewer and comes with practical difficulties (Petitmengin 2006). This means that assessing the pre-reflective dimension of experience needs the employment of specific techniques.

The MP interview technique builds on the method called *elicitation interview* (EI; also explication interview; Vermersch 1994, 2007) that helps untrained participants access and verbalize pre-reflective experience into a report by evoking and reliving the experience. It was originally applied in an educational context to help expert practitioners become aware of and describe the implicit part of their skills (mental or physical). According to Vermersch, the EI guides retrospective introspection into the type of memory that Husserl called "passive memory" (Vermersch 1994). A large part of this "passive memory" is pre-reflective, a process that unfolds without our immediate attention and knowledge but we may be able to remember it (Petitmengin 2006). The EI was further adapted by Claire Petitmengin (Petitmengin 2006) for research in cognitive science as MP with a set of rigorous practices and research tools for analysis (Petitmengin 2006; Petitmengin, Remillieux, Valenzuela-Moguillansky 2019; Bitbol, Petitmengin 2013; Valenzuela-Moguillansky, Vásquez-Rosati 2019). The method has been used in a variety of research domains, such as cognitive, educational, clinical and therapeutic, technological, artistic, contemplative, and as of recently ecological, as well as epistemological and methodological ones. As Petitmengin (2006) explains, sources for developing the MP method rely on a rich variety of references in describing experiences: Husserlian psycho-phenomenology, Piaget's theory of becoming aware, "affective memory" theories (Ribot, Gusdorf), speech acts (Carl Rogers, Milton Erickson), processes of Focusing by Gendlin, the techniques of the Neuro Linguistic Programming "modeling interview," the highly detailed psycho-phenomenological analyses made by Vermersch, and mindfulness practice (samatha-vipassanā) to learn how to stabilize one's attention and observe the flow of one's subjective experience in order to find out its structure.

Thus, MP provides novel systematic methods for the investigation of subjective experience for cognitive science within the neurophenomenological program (Claire Petitmengin being also a former PhD student of Varela). Unlike most qualitative methods that focus on the contents of experience such as thematic categories, MP also identifies the temporal progression through diachronic analysis that makes it possible to establish the dynamic structure of experience and correlation with other sources of data to study cognition (Petitmengin, Remillieux, Valenzuela-Moguillansky 2019). Both the interview and the analysis methods promote the structured assessment of subjective first-person experience by a second-person perspective involving a skilled, emphatically dispositioned interviewer/researcher. A systematic analysis and description of the structural elements of lived experiences in the MP

method can be organized both at the individual level and at a more generic level that is open for scientific validation (described in more detail later).

In regards to the principle of interviewing in the MP method, a certain expertise on the side of a researcher guiding an uninitiated, i.e. untrained, participant is needed to perform acts of assessing lived experience that is not immediately accessible to report. The interviewer has a constructive role in shared experience as a second-person mediator through "an interview method which enables us to bring a person, who may not be trained, to become conscious of his or her subjective experience, and describe it with great precision" (Petitmengin 2006: 1). The purpose is to help the interviewee sustain and stabilize their attention to focus on specific experiential aspects. When probing into the experience, the interviewer needs to maintain the questioning mode, without suggesting or inducing any content, while focusing on the structure using "how" questions (How do you know that you know?). The elicitation of experience may concern a specified lived experience in the past (evoked) or a specific task at hand (provoked). This experience has a precise spatial and temporal dimension, it is not general but *singular* and reveals also sensations that fall into, e.g., visual, auditory, tactile, kinesthetic, and other modal, submodal, or transmodal registers (e.g. rhythm).

REPORTING THE EXPERIENCE

The following excerpts from MP guided interviews with participants who are film experts serve to illustrate the nature of accessing pre-reflective parts of the experience that otherwise might remain undisclosed, the aspect that is not available for assessment in mentioned "thin" methodological approaches to assess the experience. The presented excerpts are parts of the interview process that are not directed at the experience of the film stimulus (which results in a different kind of MP procedure and analysis, **Figure 1**) but reflect the process of interviewing and how the participants have experienced the very process of evocating the experience through the method. They are gathered as post hoc verification with participants about their experience of interviewing, which is used in MP to assess the level of evocation, whether questions were inductive, and to validate the descriptions. The interviews usually last about an hour.

The participants were first guided to report on a specific event in the film (a repeated shot or a scene in the film Memento, dir. Christopher Nolan 2000). The interviews were conducted as an exploratory study on the possible phenomenological categories that could be further elicited and then elaborated with neuroimaging results regarding the same event from the film (based on Kauttonen et al. 2018). The film experts were recruited from the researcher's professional network, which includes film practice, film industry activities, and academic film research. Of the total five participants (four females), two were primarily film professionals (film editors), two were film scholars, and one was equally occupied with professional and academic work (film editing and film theory). The film experts were considered to meet the neurophenomenological preference for skilled participants, i.e. already possessing a level of awareness of one's own experience (originally referring to using meditators for their skill of non-judgmental observing similar to *épochè*). This was motivated by the assumption that film experts would use more precise and uniform descriptions in the interview related to the complex film narrative, thus facilitating the categorization of concepts in the analysis phase.

Stabilizing the attention for reporting

To introduce the nature of questioning[2] that serves to stabilize the participant's attention for eliciting a singular experience, here, the participant is asked to go back to the moment when the task was presented

2 Q stands for question (by the interviewer) and A for answer (of the interviewees).

(selecting and describing the experience of a particular shot in the film). Usually, the nonverbal clues the participants use can prompt them to become aware and describe the state.

> Q: Now I would actually like you to come back, if possible, to the moment when you were telling me about the image and how things come back to you and you were using this movement. If you remember the exact thing, maybe you can also repeat it – what is this [shows the movement], what do you think this is, when you do this?
>
> A: I think it's, it's time basically, you are rewinding.
>
> Q: When you are doing this, are you...?
>
> A: I am remembering at the same time.
>
> Q: And while you were doing this, what do you think was the function of this?
>
> A: I have no idea. Sort of, I didn't do it in a conscious way. Usually when I do this, it is like thinking back in a way.

Verbalizing

Since the process of expressing the pre-reflective part of the experience is hard to access for description and to verbalize, the following example presents a noteworthy insight into the method's possibilities to convey the nature of lived experience. The participant first reported the initial mental image and mental actions that emerged in their experience in relation to the shot in the film. Now, the participant describes what actually happens in the process that underlies reporting on that experience.

> A: Hm, it's so weird, it is more or less how my process of thinking always works. But I never tried to verbalize it or to describe it.
>
> Q: Just take your time. Is it clear in your mind or is it ...?
>
> A: I mean, it is clear but it is almost something that you do involuntarily. It is clear but when someone asks you about it then you go "Aha! It's clear but how do I describe it?" ...An action, a process but also something that ... I don't know how to say this, something that I am more involved with ... I think it goes something like this [shows movement from the head] and I think it goes to my chest. I never thought about it but I think so ... It is a tingling feeling.
>
> Q: Does it have some intensity ...? How does it start and go on?
>
> A: It's like a pulse basically, you could say that it starts slowly but it doesn't last long, so it does have sort of a curve, It does go gradually but it is like [...]simulating with hands closing and opening pulsations [...].

Deepening the access to experience

In order to help the participants overcome the initial problems of accessing experience, deepening questions that point to the structure helped them talk about the process of answering questions in great detail.

> Q: You said something interesting "Oh, how do I answer this?" What happens when you think how do I start answering this?
>
> A: It's as if you are somewhere where you can see something and the other person that cannot see it asks you "What do you see?" and then you start describing.

Q: And when you need to verbalize, how do you feel, when you need to say it?

A: But that is so strange, it's almost like it's clearer when you don't have to verbalize it. Because you don't think about it and it just happens and it happens really quickly and then when you have to verbalize it you sort of have to go back but then you are, like, what was it? It's basically like trying to remember something really, really small ...

... but when you start describing it it's more like this and it becomes more clear for you as well.

Q: So that is when you start; is it different when you are already in a sentence? What is the process then?

A: Maybe it's a little bit easier. But I think if you asked me all these questions tomorrow I would have the same problems [laughs].

Q: How do you feel when you are verbalizing it and it's becoming a sentence?

A: It's a huge strain; it's like you really have to think hard, really concentrate, and be like OK!

External (world) vs. internal (mental acts)
Another feature of a specific disposition while evoking lived experience is switching from active attending to experience to *letting-go* and allowing things to come to attention. After turning the direction of attention from the external world (such as the stimuli) to internal mental acts, the mode of attention changes from "looking for" to "letting come" and letting "reveal itself" (Depraz, Varela, Vermersch 2000). This bears great importance for discovering experiential structures without preconceived notions about the experience.

A: [describing the space that feels like darkness before verbalizing] For me it's mostly visual ... And first-person perspective, mostly ... I can move through this space but things also appear ... out of nowhere [hand gestures toward her] ... like I couldn't really point out the direction where they sort of come into that space.

When you verbalize you don't completely leave that space but you're not completely in there anymore ... you sort of leave it but not completely ...

A: This felt like I was very much more turning my attention to the process, very much inward indeed, trying to get a grip on what the stuff going on there actually does and looks like, almost a reversal of the direction of attention in a way.

Evocation state vs. naïve or thin report
Reaching the evocation state from which a description is possible (instead of referring to preconceived notions, categories, and knowledge) can also be observed through the participants pausing and talking at a different pace that can be accompanied with various gestures and reflects the process of accessing such a state.

Q: So you discovered something about this space ...?

A: Yeah ... It's also a question of time because this is like in slow motion ... and it usually happens so quickly and when you're forced to verbalize it then you sort of slow down that process and try to sort of [shows hand gestures step by step] like you said step by step ... rrrrrrrrr [imitates slow-motion voice].

Expert knowledge and accessing experiential structures

Since the participants had expert knowledge regarding either film practice or theoretical aspects of film studies, it was also revealed how assessing and describing the experience with the MP method relates to expert knowledge.

> A: It's similar in that it has a mapping quality, putting the pieces in place ... also quite spatial ... although I do realize now that it is funny that as a narratologist I've never actively reflected on what my comprehension process looks like ... like, oh, this is actually what I do! It was different indeed; it was very thoroughly inward-looking in this case. I'm more outward bound and also more, of course, what would be the moments in the film, representation, what-not.

Reflection on the process

Upon wrapping up the interviews, participants are asked to reflect on the process of interviewing, which also helps verify the level of evocation the subjects experienced, whether it is satisfying for the analysis, and if deepening interviews are needed. It also indicates that talking about the structure of one's experience doesn't seem to modify with time as the details of the content would have it.

> A: The first time [interviewing] I was stuck more on the details out there and now I reflected on my process as a spectator and what concretely happened. When we talked about what I said it helped me go deeper into my own role regardless of what is on the screen ... It takes time to get there. It's not easy from the first moment on and it requires some warming up ... I see that there are no differences in what I said the first time but I reflected it further.

As part of the interviewing contract between the interviewer and the interviewees, participants are asked in the end about how they experienced the overall process in terms of difficulty and clarity.

> A: It was an effort ... to find the words ... but it's also very interesting because it's something that you do automatically, and that's why I guess that space is so familiar, you do it automatically all the time; you are always there basically. You don't think about [it], but then if somebody asks you if that space is big or small you just go, like, OMG!
>
> Q: ... It actually exists?
>
> A: It actually exists! Damn ...

Such a revelation about the undiscovered space of the experience with all its dimensions and details that would remain undisclosed without guided probing with the MP method testifies to the structure of the experiential landscape behind initial observations and to the non-trivial process of accessing and describing it.

IDENTIFYING EXPERIENTIAL STRUCTURES

The MP method identifies regularities as *experiential invariants* related to the structure of the experience, not descriptions of the content of the experience. While the aim of MP is to assess experience that is singular, this is not the same as the individual nature of the content of experience that can be indefinitely varying (Petitmengin, Remillieux, Valenzuela-Moguillansky 2019). This stands as a precondition to establishing experiential invariants through the method that progressively builds the structure of experience. Such analysis of the structural elements ("how" of an experience) allows the reproducibility of analysis results by intersubjective validation. Thus, regardless of the singular nature of a given experience, the experiential structure

may result in a generalized structure of a specific type of experience. The reproducibility of the discovered generic structure of specific types of experience can be further tested across different subjects (see Petitmengin, Remillieux, Valenzuela-Moguillansky 2019; Valenzuela-Moguillansky, Vasques-Rosati 2019).

The analysis process of the MP method emerged as a set of devices established to detect the refined and chronologically reorganized descriptions of *singular experiences*, the *specific structures* of these experiences, while progressively unfolding the *generic structure* of the type of experience being investigated (Petitmengin, Remillieux, Valenzuela-Moguillansky 2019). Both specific and generic structures have two dimensions, *synchronic* (in-depth) and *diachronic* (over time). The mode of questioning makes it possible to obtain descriptions characterized by a very fine level of granularity (e.g. When you do this, how do you do it?). The iterative approach of the MP method is a confirmation or invalidation of the detected structures. After initial interviews, when a potential structure is detected, it becomes a hypothesis and further gathering and analysis of interviews serves as either confirmation or invalidation of the structure and the categories.

Synchronic dimension: sketch of a generic structure

As a way to illustrate how structural elements can be organized, the following example presents the initial iteration of the five interviews to establish the sketch of a structure of the reported mental image that participants described in relation to the task (seeing a repeated shot in the film, which is a time-locked event). Here again, regardless of the content of the stimulus and its hypothesized narrative relevance for the film's comprehension (in the neuricinematics study), the participants are guided to respond and describe "how" they are perceiving the shot instead of commenting on "what" the shot means or what the formal content of the shot means as one would do in different types of cinematic study.

The synchronic dimension of experience corresponds to the configuration of the experiential space or "landscape" (also defined as "architecture" or "topography") at a given moment in time (Petitmengin, Remillieux, Valenzuela-Moguillansky 2019). The form of questioning needs to lead to such structural descriptions, i.e. asking the subjects how they perceived something instead of what they perceived (e.g. When you see this, how do you see it?). The synchronic structure here uncovers the main features

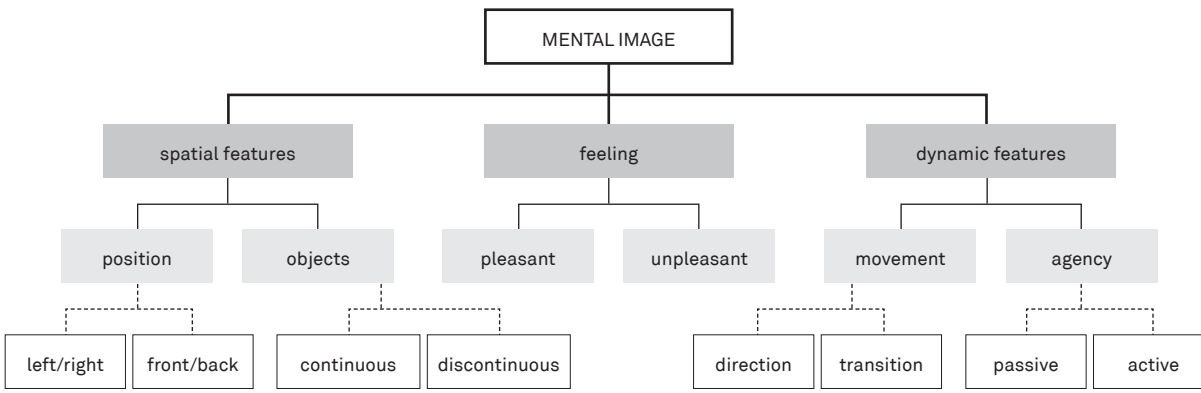


FIGURE 1. Generic synchronic structure. The bottom line represents the first level of abstraction from utterances into descriptive categories. The next level of abstraction is aimed at grouping these descriptions into adjacent categories (upper, second from the bottom) that are then organized into main general features (third from the bottom) of the experience of mental image (the uppermost level).

related to the mental image reported in relation to experiencing a specific moment in the film. The reported characteristics describe this mode of perceiving in more detail (spatial and dynamic features of the mental image and the accompanying feelings). For the purpose of illustrating how experiential elements can be organized into categories, only the synchronic dimension is represented while the temporal organization of the features would correspond to the diachronic dimension (not represented).

Spatial features: Further questioning about the elements of the initially reported mental image revealed that there are elements positioned in space with orientation. The participants "see" it located in front/back, or on the left/right. Additionally, the nature of perception in these moments is described as almost being an object in space that either has the shape of sparse elements (discontinuous) or appears as a sequence of images organized like strings (continuous).

Dynamic features: Upon questioning how these spatially defined elements are experienced in terms of their organization or progression in the experience that was already indicated by the participants using co-verbal body gestures, several other descriptive categories are identified. These indicate that the elements are perceived as moving in space, having the direction of movement (back to front or left to right) and transition (in and out, overlap, etc.). In addition, these elements are perceived in relation to the participants and their bodies, i.e. as having agency or not, either in a passive way where things happen for the participant (images switching in different planes) or where they actively participate in organizing the elements (jumping from one to another element, building them into a string).

Feelings: The participants also reported experiencing different feelings in relation to the mental image when seeing the shot. These feelings had a different quality depending on the phase identified in the progression of experience. Feelings like nervousness and uncertainty were mostly related to the phase that was chronologically in the beginning while more joyful feelings were reported in the later phase of reflection.

Diachronic dimension: building a dynamic experiential structure

Eliciting lived experience always includes the dimension of time, which stands in contrast to talking about beliefs, opinions, or general and theoretical knowledge. The organization of the time dimension, i.e. diachronic units of experience, could be done through phases (set of processes), sub-phases (a process), or further through sub-sub-phases (gestures or actions) and micro-acts and micro-processes, depending on the level of granularity and detail sought (Valenzuela-Moguillansky, Vásquez-Rosati 2019). Within the diachronic analysis, an operation named "transitional event" (Petitmengin, Remillieux, Valenzuela-Moguillansky 2019, or *hinge points* in Valenzuela-Moguillansky, Vásquez-Rosati 2019) helps to establish phases and separate them. Such an event is related to a modification in the subject's experience that transforms it into another state and can correspond, e.g. the appearance of a sensation or a change in intensity of one of the parameters of the experience. Additionally, this transition can be further represented in terms of its dynamics that organize diachronic and synchronic features together. Constructing and representing the structure of diachronic units, their hierarchy, (non)linearity, and naming, is a trial-and-error process of sketching until operations and units are stabilized (Petitmengin, Remillieux, Valenzuela-Moguillansky 2019).

Concerning the experiential description in relation to the stimulus, the main three phases were initially identified that correspond to the experience of seeing the repetition of the shot. These phases indicate different stages in the progression of the experience that without in-depth elicitation may appear as an instant event without rich structural components (e.g. just recognizing the shot vs. complex spatial-temporal dimensions). The discov-

ered phases are: 1) focusing of attention on the scene, being in a state of expectation about what comes next, and making a mental note that one should memorize what is happening in the scene, 2) being aware of the gap in understanding of the scene and a state of focusing on what will happen next rather than the current or past event, and 3) moving back and forth between seen information described as mentally adding new information to the string of events to examine overlaps and then taking a step back as if to have an overview of what is seen, also recognizing that the feeling of expectation is gone.

Even though these stages could be differentiated in the experience, they are not strictly demarcated in time and contain overlaps of reported features. Certain inner operations can be identified that organize relationships between the phases such as back-and-forth transitions between the features of the phases. The events that trigger transition between the phases also represent relations that are indicated as spatial organization of what is perceived (back/front/switching), as dynamical organization (zoom in/out), or as states of anticipating while searching back into established information or knowledge.

NEUROPHENOMENOLOGICAL IMPLICATIONS

Considering the current constraints on available space for a detailed neurophenomenological analysis, something that would require another type of publication, and the current emphasis on the principles of experience research, some key aspects concerning the potential contribution of phenomenological insights from the present study are postulated.

On the phenomenological part of the inquiry in the neurophenomenological framework, the stimulus (repetition shot in the film) is approached in a bottom-up manner of investigation from the singular experiences it evokes in the participants. This is in contrast to any external criteria that hypothesize or interpret the stimulus in terms of the neural correlates (i.e. neuronal fingerprint pattern) and related cognitive functions. Even though the time-locked event, i.e. the stimulus, as determined by the neuroimaging design (fMRI neurocinematics study), overlaps with the phenomenological investigation, there is no *a priori* assumption that they establish the same type of cognitive phenomena (in terms of mentioned cognitive ontologies).

For example, in the neurocinematics study, it was discovered that the stimulus can be linked to the networks associated with long-durational memory storing and narrative comprehension and originate from a novel combination of "underlying memory (cued recall) and narrative-related (schema reconstruction) processing" (Kauttonen et al. 2018: 316). These "schemas" are assumed to continuously shape the high-level knowledge structures in the brain by way of comparing and assimilating new information with pre-existing networks of knowledge. Furthermore, memory schemas can be characterized by sensitivity to "chronological relationships," "hierarchical organization," "cross-connectivity," and "embedded response options" (Ghosh and Gilboa 2014: 104). For resolution of the conflict between the two sources of information, existing and new, and for integration of the new information and knowledge, the role of medial prefrontal cortex has been considered essential in exerting top-down control (Kauttonen et al. 2018: 321).

In the phenomenological analysis, the transitional events and their phases reflect competing properties of new and previous information about the film and are accompanied by specific strategies involved in these transitions, including distinct temporal characteristics. Such different aspects of experience identified in the interviews could be informative in top-down regulation between new information and previous knowledge. In other words, they give new insight into what is the actual process that brings about memory integration when it comes to the schema model rather than identifying the content of these processes. In the MP study, this process identifies phases and sub-phases in response to the

stimulus that are variously chronologically connected and this may indicate specific hierarchy or the temporal structure (transitional events). This can be further dynamically connected with a mental image and its particular spatial (position, objects) and dynamic experiential features (movement, agency). Considering the terminology established by the participants in the MP interviews, they used terms such as memory or remembering rarely. Instead, the term anticipation or expectation continually surfaced to describe the experience of a repeated film event (stimulus). As anticipation plays a role in modulating performance on perception, attention, and memory (Friston 2005; den Ouden 2010; de Lange et al. 2018; Lee et al. 2021), further structural investigation of phenomenology can help situate this relationship within the schema model (i.e. whether anticipatory events situate recollection). Additionally, the role of feelings accompanying such events, as reported by the participants, can also become informative if other networks are found to play the role.

After all, the higher-order cognitive processes ("schemas") hypothesized to correlate to the stimulus in neurocinematics fMRI study have not been previously understood through any experiential categories for the purposes of analysis. In case certain categories start to appear across interview data, as the results have shown, this then indicates the discovery of a shared experiential structure, an element that cannot be assessed by other methods (e.g. neuroimaging, behavioral tasks). However, they can complement each other and possibly produce "mutual constraints," whether for a study design, an analysis, or interpretation of the results in neurocinematics.

FILM EXPERTS AS SKILLED PARTICIPANTS

The MP method was created to help "participants" who are not initially trained to access their experience, but it may achieve this with great awareness due to the role of a mediator. The training of participants, as initially construed by the neurophenomenological program, can be time-consuming and hard to implement in practice and experimental designs. In facilitating reliable data collection and analysis more efficiently, the (empirical phenomenological) method has proved to benefit from the use of skilled participants, or "phenomenologically trained subjects" (Varela 1996; Thompson et al. 2005; Berkovich-Ohana 2020). This is why in practice, for example, practitioners of meditation have been considered suitable as skilled participants; there is a similarity between the phenomenological method of épochè and certain meditative techniques that allow observing thoughts in a non-judgmental manner and one's own experience in a present moment (Varela, Thompson, Rosch 1991; Varela, Shear 1999; Depraz et al. 2003; Depraz 2019).

For the purposes of film studies and the neurocinematics paradigm, which uses stimuli that are highly complex on the level of both formal features and meaning, a systematic involvement of film experts in the phenomenological study may contribute to an understanding that cannot be obtained otherwise. This systematic involvement would mean sampling of experts as participants whose insights will be investigated and analyzed within the framework of professional practice, film studies, and empirical phenomenology. Such analytical framework can "front load" (Gallagher 2003) valuable insights and systematic data into hypotheses and research questions for experimental work.

Due to the complex nature of the film-viewing experience as well as the methodological challenges related to MP interview processes, several advantages justify the use of film experts as assumed skilled participants. Firstly, a film expert has a lifelong training in paying attention to their own experience when engaging in moment-by-moment analysis of a film or describing it structurally. Secondly, in comparison to naïve participants, film experts are able to express their film viewing–related experiences in an exact manner using established film vocabulary, which helps to stabilize descriptions. Thirdly, they are familiar with

the established film genre conventions, and filmmaking strategies, the use of rhythm, light, movement, and so on, which makes accessing the subject matter more easily.

Inviting film experts to participate in the studies can be the first step to untangle the difficulties of investigating complex film stimuli from a structured experiential perspective. The expert participants are assumed to be capable of distinguishing between story-related elements and structural elements of narratives (general description level) as well as assessing in detail the variety of experiential layers (specific and singular experience). Involving participants with expertise such as film editing in the present study also ensures that their attention throughout the lengthy viewing of the film is substantially maintained for reporting. They are also able to assess details usually unobserved by others as well as particular structures that can be precisely identified through time and space dynamics, which supports detailed probing into experience.

Additionally, since both the participants and the interviewer/researcher in this case are film experts, they shared the same expert vocabulary on film practice and theory. This shared expertise was assumed to minimize the inconsistencies that may appear in the language during the interview and in this way more efficiently satisfy the level of data acquisition and analysis conducted by the interviewer. The shared vocabulary is seen to help the interviewer distinguish with higher precision whether the participant speaks from the evocation of singular experience (desired process) or conflates it with their own expert knowledge that is not part of the singular experience (undesired process). This further helps to obtain data that are more accurate because the interviewer is able to recognize subtle levels of expression and to intervene in the process in order to guide the participants. Experts using more-uniform descriptions related to the complex film narrative can facilitate a more stable categorization of concepts in the analysis phase.

CONCLUSION: TOWARDS A DYNAMIC INTEGRATION

The fundamental challenge in cognitive science to understand how conscious experience relates to the neurobiological domain, as neurophenomenology postulates, would need "mutual constraints" between different sources of data (i.e. subjective first-person and objective third-person). Such constraining means that neither should have the primacy or the final word in terms of epistemological and methodological motivation (Varela 1996). In response to Husserl's project for employing épochè, various research methods adopting philosophical phenomenology may disparately correspond to the original idea and the requirements (Zahavi 2021). The pragmatics involved in the neurophenomenological program, however, need to consider the development of formal models for the dynamic links between first-person and neurophysiological data (Thompson, Lutz, Cosmelli 2005). If the aim is to bridge the gap between the phenomenological level of description and the natural scientific one such as to allow building formal models of the descriptions of lived experience, the most relevant question becomes what methodological mapping needs to be established in order to formalize elements of Husserlian phenomenology (Albarracin et al. 2022; Ramstead et al. 2022).

The study of complex, long-durational, and highly contextualized narrative stimuli such as films in neurocinematics presents challenges in investigating the cognitive processes that neuroscience aims to understand by interpreting brain activations. In a situation such as free viewing of films, it can be challenging to distinguish and interpret mental concepts based on neuroimaging data when decoding brain activations. When these (methodological) difficulties increase along with the complexity of the studied phenomena due to the nature of the higher-level mental function, an in-depth description of experiential structure can be critical.

Rather than assessing study subjects', i.e. participants', experience by a predefined questionnaire in a "thin" methodological sense that can introduce confounds due

to simplifying the structure of experience and having a lower level of complexity in the data, could we better optimize the use and understanding of naturalistic stimuli through second-person methods? Skilled participants who are aware of their structure of experience could help to constrain and verify the results obtained in other research modalities. This could be seen as an extension of the original quest for the training of participants to report experience in a neurophenomenological research program and could be further incorporated into neurocinematics settings that could highly benefit from implementing these methodologies. Film experts and artists more generally lend themselves as suitable participants for phenomenological interviewing because they are already used to introspecting and expressing their procedural aspects of mind while the language of explicating is not constrained by theory-laden explanations (concerning experience or cognition that might appear in, e.g., psychology, philosophy, neuroscience). Vermersch (1994) has already established that some professional fields such as theater and psychotherapy developed the deliberate use of the type of elicitation of experience (from "passive memory") used in phenomenological interviewing.

The complex nature of film viewing experience has been characterized and theorized through the embodiment of abstract concepts such as image schemas of the embodied pre-linguistic structure of experience (Coëgnarts, Kravanja 2012; Coëgnarts 2017; originally Lakoff, Johnson 1980). Such preconceptual sense-making of the formal cinematic elements is considered to operate on the precognitive and pre-verbal levels conceptualized as embodied simulation (Gallese 2005; Gallese, Guerra 2012). Indeed, this is also the pre-reflective level of lived experience that MP can successfully assess for the report. Considering the spatial and embodied aspects of the viewing experience reported by the participants, micro-phenomenological analysis in the context of cinematic experience could benefit from evaluating its phenomenological categories against the above-mentioned philosophical and neuroscientific elaborations of the embodied grounding principles. Even highly complex (puzzle) narratives such as the stimulus used in the present study can be understood through such an embodied and situated approach (Willemsen 2018; Kukkonen, Caracciolo 2014).

Apart from the verbal eliciting of experience in the MP method, it should be noted that the gestural or nonverbal dimension of experience also constitutes a relevant aspect of the method's procedure. As shown in the verbatim excepts from the study, nonverbal clues (such as body movement, eye gaze, intonations, and speed) can be used to prompt the participants to deepen and elaborate on aspects of their pre-reflective experience that are usually not available for immediate report if not specifically elicited. For this reason, the method may also benefit from the previously established techniques of visual externalization of inner (thought, emotion, etc.) processes in art psychology to understand cognition (Arnheim 1954). This, however, may be well suited for the prompting phase of the experiential reports while the empirical phenomenological methods such as MP rely fundamentally on the trained guidance of the participants' experience to avoid naïve introspections in order to uncover and systematically analyze experiential structures.

By avoiding any general beliefs about film formal elements, characters, spectatorship, or narrative understanding as interpretation, and instead applying the MP interview and analysis method, we may be able to uncover specific experiential processes the film viewers might not have been aware of without iterative second-person guided interviews. Such findings discovered through systematic MP analysis may allow new insights into hypothesis forming, operational definitions, and study designs in neurocinematics. Developing such expertise in the experience research domain can help to assess the features of the stimulus as they are structurally dispositioned in the spectators' experience rather than superficially assessed for the "naturalistic" appearance of the stimulus.

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JELENA ROSIC is a PhD candidate and a cognitive scientist with an arts and humanities background. Her research combines empirical phenomenology and neuroimaging insights with the backdrop of embodied cognitive film studies and film expertise. Within neurocinematics studies, she participated in developing systematic annotation methods of film stimuli for optimized linking of cinematic features to fMRI data. Bringing together different levels of analysis led her to explore epistemological and methodological aspects of neurophenomenology focusing on (formally) integrating empirical phenomenological methods, neuroimaging, and (computational) data modeling. She completed the training in microphenomenological interview and analysis methods for systematic phenomenological investigations and further application in cognitive neuroscience and technology domains. Her research interest within neurophenomenology considers correlational as well as co-constitutional approaches while exploring methodological commitments for naturalizing phenomenological data i.e. computational (neuro)phenomenology. She also works in applied HCI research and as a professional film editor.