


Toward a science of experience: Outlining some challenges and future directions

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Abstract

In recent decades, empirical study of experience has been installed as a relevant and necessary element in researching cognitive phenomena. However, its incorporation into cognitive science has been largely done by following an objectivist frame of reference, without reconsidering the practices and standards involved in the process of research and the interpretation and validation of the results. This has given rise to a number of issues that reveal inconsistencies in the understanding and treatment of some crucial aspects of first-person research. In this article, we will outline a research direction aiming at contributing to the establishment of a framework for the study of experience that addresses these inconsistencies. Specifically, we will identify some challenges facing the study of experience—in particular those linked to the understanding of memory, expression and description, and intersubjectivity in exploring experience—and propose to reframe them under the epistemological framework of the enactive approach. Moreover, we will explore the prospect of gaining insight into theoretical and methodological strategies for dealing with these issues by extending our vision beyond the field of cognitive science to its neighboring fields, focusing in particular on the field of somatic practices.

Keywords

First-person research, experience research, enactive approach, neurophenomenology, somatic practices, consciousness research

1. The explanatory gap and the study of experience

In recent decades, the field of cognitive science has gradually opened a space for the study of lived experience (i.e., concrete and singular experience as it is given from the first-person perspective of the experiencing subject at a given time). This was partly prompted by the perceived inability of cognitive science to explain the “conscious” in “conscious cognitive phenomena”. In particular, philosophers of mind such as Thomas Nagel (1974) and David Chalmers (1995) pointed out that while most phenomena studied in cognitive science (e.g., perception, attention, memory, thinking, and emotions) manifest in our lived experience, the field has so far failed to account for the “*what it is like*”—that is, the experiential or phenomenally conscious—character of these phenomena (Nagel, 1974).

By identifying the hard problem of consciousness (Chalmers, 1995) and the so-called “explanatory gap” (Levine, 1983) between the third-person methods of behavioral and neuroscientific approaches, and the first-person nature of lived experience, “consciousness”—a notion that had been virtually banned from the research agenda of cognitive science for many years—was once again

positioned as a central research theme. It was in the context of these discussions that Francisco Varela (1996) proposed what he called the “methodological remedy” for the hard problem of consciousness: the research program of neurophenomenology.

1.1. Neurophenomenology: A pragmatic proposal for the study of experience

Neurophenomenology proposed a development of a science of consciousness that would recognize the irreducibility of lived experience and suggested establishing a dialogue between the third-person methods and methods that allow the disciplined study of experience from the first-person

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perspective. Importantly for the topic of this article, the neurophenomenological program was already in its origins explicitly posited as a project emerging from the enactive approach, put forward a few years earlier in Varela, Evan Thompson and Eleanor Rosch's *The Embodied Mind* (1991). Expanding the insights of the theoretical-philosophical analysis of the initial enactive proposal, the neurophenomenological project was to "[concentrate] on the key issue of methodology" (Varela, 1996, p. 346).

Varela stressed that establishing neurophenomenology involved a double challenge: first, that scientist learn and practice methods that enable the embodied contact *with* and description *of* their lived experience, going beyond the simple, habitual "take a look" attitude toward experience; and second, that scientific culture be transformed by "leav[ing] behind a certain image of how science is done, and to question a style of training in science" (Varela, 1996, p. 347).

For addressing the first part of the challenge, Varela, together with Jonathan Shear, identified candidate methods in a variety of practices ranging from contemplative traditions, phenomenology, introspection, and somatic practices (Varela & Shear, 1999a). While these practices might follow different methodological guidelines, Varela and Shear pointed out that they all share the encouragement of suspending the natural, everyday attitude toward experience and its intended contents. In particular, the aim of these methods is not to describe what the experience is supposedly about— that is, the aspect of the observer-independent reality to which it purportedly refers (e.g., the features of the bottle I am seeing in front of me)—but to instead redirect attention toward describing the mode of its appearing, including the acts or gestures that make this appearing possible (e.g., the movements of attention I do to distinguish different surfaces and the form from its background). This redirection toward the so-called phenomenological attitude is achieved by suspending habitual presuppositions about the content of the experience (e.g., it is a "bottle"); above all, about the objective existence of what the experience is supposedly about—an objective world independent of the act of observing and of the observer (Varela & Shear, 1999).

An early example of concrete attempts at a neurophenomenological investigation is the essay *The Specious Present: A Neurophenomenology of Time Consciousness* (Varela, 1999), in which Varela proposes an analysis of the experience of the present, based on evidence generated independently in the field of cognitive neuroscience and in the field of phenomenology, which he integrates with the aim of establishing mutual constraints between both types of accounts. Another example is the article *At the Source of Time: Valence and the Constitutional Dynamics of Affect* (Varela & Depraz, 1999), in which the authors analyze affect and emotion as constituting a foundational dimension in the

emergence of moment-to-moment consciousness through the integration of evidence from cognitive neurosciences, phenomenological notions, and first-person inquiries into the authors' own lived experience.

These early neurophenomenological investigations provided insights not only into the studied experience (e.g., experience of time or affect) but also—and importantly—into the characteristics and possibilities of the means for observing experience. Namely, they contributed to the realization that in order to study any type of experience, it is necessary to engage in the act of *becoming aware*—which is itself an experiential process. This realization reveals a fundamental aspect of the study of consciousness: its dynamic, transformative, and self-referential character. In *On Becoming Aware* (Depraz, Varela & Vermersch, 2003), the authors further developed this insight by integrating the very process of inquiring into experience as part of the results. In particular, they showed that experience, unlike a typical "object" of scientific inquiry, which can be statically inspected, is itself a *process* (dynamic character). Furthermore, the very act of inquiring into experiencing *transforms* the experiencing in question (transformative character). Finally, in studying lived experience, experiencing is at the same time both the "object" *of* and the "instrument" *for* inquiry (self-referential character).

The neurophenomenological call has been adopted by several research groups in the field of cognitive science (e.g., Lutz, Lachaux, Martinerie & Varela, 2002; Petitmengin et al., 2007; Valenzuela-Moguillansky et al., 2013; Dor-Ziderman et al., 2016; Nave et al., 2021), awakening the concern for research into experience and promoting the development of specific first-person methods,¹ such as micro-phenomenology (Petitmengin, 2006; Petitmengin et al., 2019)—an interview method which has recently come to be increasingly employed both in combination with third-person methods and in stand-alone, exclusively first-person research designs. Other first-person methods, such as descriptive experience sampling (Hurlburt, 2011), were established independently of the neurophenomenological call, but have since been employed in neurophenomenological studies as well (e.g., Hurlburt et al., 2016).²

1.2. Objectivizing the study of experience

With the establishment, refinement, and popularization of a few well-defined first-person methods, the study of experience seems to have claimed its place among the collection of research approaches in cognitive science. However, it appears that some of the fundamental insights of Varela's proposal and the early neurophenomenological research have been overlooked. Namely, rather than acknowledging and systematically addressing the particularities and peculiarities of experiential research—that is, the dynamic,

transformative, and self-referential character of (inquiring into) experience—neurophenomenological studies have often approached experience as a typical object of investigation, regarding it as an experiential correlate of a cognitive phenomenon—one that can be placed alongside its neurophysiological and behavioral correlates.

The view that the aim of observing and describing experience is merely to gather first-person data to be combined with or added to third-person data acquired by means of more “objective” methods of cognitive science suggests that experience is but one among the different objects of cognitive science—and that the study of experience is but one among its different research instruments. This seems to further support the idea that researching experience, if it is to be *scientific*, should comply with the received standards of the (mainstream) research community—standards that, as we will elaborate below, are largely based on an objectivist understanding of knowledge as referring to observer-independent reality, and of the knower/observer (or the act of knowing/observation) as being separated from the objects of knowing/observation.

This idea places unattainable epistemological and methodological demands on the study of experience, giving rise to challenges that cannot be adequately addressed within the existing objectivist conceptions of scientific knowledge and validity in cognitive science.

Following an objectivist view, for instance, investigating experience should be guided by the maxim of avoiding (or at least minimizing) the potential disruption of experience as an object of investigation—but where can one, in attempting to study one’s own experience, draw the line between experience as an *object* of inquiry and experience as the *act* of inquiring? Furthermore, the objectivist view would require the present act of reflecting on and remembering the past (or even just-elapsing) experience to accurately “represent” it in the present—but how can one ensure that the experience being remembered indeed correspond to *what was there in the past* (i.e., the past experience as it was actually lived back then), rather than to *what is here in the present*—if the memory of the intended past experience is always manifested in the here-and-now of its investigation?

The issue that subjective experience is by definition directly accessible only from the first-person position of the person who lives it appears, from the objectivist perspective, even more detrimental for the very possibility of the scientific study of experience. If the object of observation, to which first-person accounts are intended to refer, is lived by only one subject, and furthermore only once, the prospects of these accounts ever being amenable to genuine intersubjective corroboration and validation by the scientific community must be null—leading to a conclusion that studying experience cannot lead to scientific results. And even if we were to allow for making accounts of experience accessible and communicable to others, and thereby

amenable to intersubjective examination and assessment—how could the objectivist position account for the constructive transformative dimension of the acts of expressing experience and examining it together with others?

These and similar issues might be unsurmountable from an objectivist understanding of first-person research and the cognitive and epistemic processes that underlie it, such as the processes of remembering experience, expressing it, as well as acquiring, validating, and analyzing accounts of it in an inherently intersubjective context of cognitive science. The motivation behind this article is to look for and examine an alternative approach that can embrace the distinct features of these processes.

1.3. Naturalizing experience?

Linking neurophenomenology to the idea that experience should be integrated into an objectivist framework of (or inspired by) natural-scientific disciplines may have been supported by a narrow reading of the related movement of “naturalizing phenomenology” (Petitot et al., 1999). Reinforced by some of its more objectivist-sounding characterizations, this movement has sometimes been made into a target of the critics of naturalism and objectivism (e.g., Zahavi, 2010; Ratcliffe, 2013); see, for instance, the introductory chapter to the volume *Naturalizing Phenomenology* (Petitot et al., 1999), in which the editors state that to “naturalize” phenomenology would mean to “[integrate it] into an explanatory framework where every acceptable property is made continuous with the properties admitted by the natural sciences” (Roy et al., 1999, pp. 1–2).

However, the diverse collection of contributions in *Naturalizing Phenomenology* (including Varela’s essay on the neurophenomenology of time consciousness, mentioned in Section 1.1) itself shows that to naturalize phenomenology or lived experience does not necessarily mean to force it (and its study) into the *existing* natural-scientific frameworks. The aim of making phenomenology “continuous with the properties admitted by the natural sciences” can be approached in a variety of ways, many of which are explicitly non-objectivist. In fact, several authors have argued that a consistent approach to naturalizing phenomenology must necessarily be non-objectivist, as it must inevitably entail a rethinking (or a “phenomenologization”) of the concept of nature and of (natural) sciences themselves (see, for instance, Thompson, 2004; Vörös, 2014; Zahavi, 2010; Gallagher, 2018). The approach put forward in this article is in line with this non-objectivist understanding of naturalization.

1.4. The enactive approach to the study of experience

The tendency to approach the study of experience within the norms of the objectivist framework circumvents the

epistemological shift involved in the original neurophenomenological proposal, overlooking its emphasis on the primacy of experience, as well as its non-objectivist philosophical roots in the enactive approach (see [Vörös, 2014](#); [Bitbol & Antonova, 2016](#); [Bitbol & Petitmengin, 2017](#); [Petitmengin, 2017](#)). In pragmatic terms, this objectivist tendency has prevented researchers from envisioning and elaborating a frame of reference for a science of experience that can embrace and account for the specific features of its subject matter. Consequently, the current understanding of first-person research, its epistemic value, its standards of validation, and its place in the context of cognitive science still lacks clarity and coherence.

As [Varela \(1996\)](#) pointed out in the original neurophenomenological proposal, a true dialogue between first- and third-person methods will not be achieved by attempting to further fit the study of experience into existing frameworks of objectivist science—nor, we can add, by defending first-person research by referring to objectivist ideas of validity and research practices. Instead, the first step toward this dialogue is to properly address the second part of the above-mentioned “double challenge” of neurophenomenology, that is, to work toward transforming the values, standards, and practices of the research community into a framework compatible with the particularities and peculiarities of the study of experience. In other words, in order to explore the possibility of establishing a dialogue between the first- and third-person approaches (rather than perpetuating the monologue of the objectivist view), it is first necessary to see where the study of experience can lead us by exploring its own limits and possibilities, without being already at the outset restricted by the objectivist approach.

This article aims at outlining some steps that we have identified as conducive for this goal. First, we will propose to reorient the development of the study of experience on the basis of the enactive approach as a suitable non-objectivist and non-reductionist epistemological framework from which first-person research (in the context of cognitive science) was originally proposed. We will lay out some central principles of the enactive approach, focusing in particular on its roots in the biology of cognition ([Section 2](#)), and go on to demonstrate how these principles may apply to some central challenges encountered in integrating first-person research within the broader context of cognitive science, specifically those related to understanding the processes of remembering and expressing experience in first-person research and to dealing with the intersubjective dimension of such research ([Section 3](#)). Second, we will propose to inform and expand the methodological ground of first-person research by looking to neighboring fields of knowledge that are coherent with the epistemology of enaction; in particular, we will focus on the example of somatic practices and how they could inform the theoretical and practical treatment of the above-mentioned processes ([Section 4](#)).

2. The enactive approach and the epistemological bases for the study of experience

As mentioned above, the peculiarity of experience as an object of observation and description, and the consequent peculiarity of the study of experience as a research field have already been recognized in the earliest texts on neurophenomenology and its call for first-person investigation. Recently, the failure of the objectivist view to accommodate the dynamic, transformative and self-referential features of inquiring into experience has led several researchers to more specifically examine alternative, non-objectivist and non-representationalist epistemological and methodological frameworks for understanding and evaluating first-person research (e.g., [Petitmengin & Bitbol, 2009](#); [Bitbol & Petitmengin, 2013](#); [Kordeš, 2016](#); [Kordeš & Demšar, 2018](#); [2019](#); [Valenzuela-Moguillansky et al., 2021](#)). In line with the idea of enaction, these examinations stress that it is in principle impossible to assess first-person accounts in terms of their supposed correspondence to the intended, but ultimately unattainable “original” experience. Instead, they argue that first-person research should recognize the perspectivity and transformation inherent to examining experience ([Kordeš & Demšar, 2021b](#)), pointing toward the suitability of a constructivist understanding of first-person knowledge, as well as the need for alternative standards for evaluating first-person research (e.g., relying on internal and intersubjective processual criteria, see [Petitmengin & Bitbol, 2009](#), [Bitbol & Petitmengin, 2013](#); [Petitmengin, 2017](#)).

In this section, we will indicate the relevance of enactive epistemology for advancing first-person research by looking at the biological bases of some of the principles that we consider crucial for framing a science of experience: the principles of a) non-objectivism; b) non-reductionism; and c) recognizing the primacy of experience in the study of cognitive processes and the generation of knowledge.

The enactive approach to cognition and cognitive science introduced the notion of enaction to propose an alternative way of understanding cognition and the relationship between the subject (i.e., the cognizing organism) and its world ([Varela et al., 1991](#)). Namely, instead of assuming an external objective world, pre-existing to and independent of the subject, which the cognitive organism accesses through its senses (direct realism) or represents through its nervous system (indirect realism or representationalism), the enactive approach understands cognition as a “skillful know-how in situated and embodied action” ([Thompson, 2007](#), p. 13): a dynamical, situated, and embodied process in which the organism enacts (i.e., brings forth) its world through the sensorimotor coupling with its environment. This understanding has some of its roots in the ideas developed by Humberto Maturana and Francisco Varela based on the

analysis of living organisms as autopoietic systems (Maturana, 1970; Maturana & Varela, 1980, 1987). Their most radical contribution to the cognitive sciences can be considered the epistemological shift that involved the analysis of biological systems as autonomous and self-organized systems.

2.1. Biological basis for a non-objectivist epistemology

By recognizing as a fundamental characteristic of living beings their autonomy and self-production (autopoiesis), Maturana and Varela (1980) highlighted the fact that living beings specify themselves as units, thus distinguishing their interior and exterior, that is, their identity and their world. They further pointed out that living beings are structurally determined systems, meaning that the internal structure and organization of the organism co-determines the type of change triggered by perturbations of the environment (rather than the environment dictating the type of change triggered in the organism). In this way, the recurrent interaction between an organism and its environment (which includes other organisms) gives rise to a history of mutual perturbations with concordant structural changes, that is, a sensorimotor coupling between the organism and its environment. It is from this relationship, from this interaction that the cognitive organism and its world are co-constituted. Consequently, the possibility of knowing an objective world or reality, independent of the cognitive organism, is incompatible with the biological nature of the organism.

2.2. Biological basis for a non-reductionist epistemology

Maturana and Varela placed a great emphasis on distinguishing the different phenomenal domains that emerge with living beings. These refer to the sets of phenomena associated with the interactions that are possible for a certain type of an entity. Autonomy makes living beings capable of specifying their own phenomenal domain, which is different from the lower-order phenomenal domains of their components, and also different from the higher-order domains that may arise when coupling is established between different organisms (Maturana & Varela, 1987).

It is important to emphasize that these phenomenal domains are independent from one another and that failing to recognize this independence leads to reductionist explanations. In the context of cognitive science, for instance, theories can be posited about phenomena that arise in the domain of organism (which involves the interaction of the organism with its environment)—such as all cognitive phenomena—based on the functioning of an organ only, for example, the brain (e.g., Churchland, 1994, 2002). This

confusion of “levels” of explanation (Potochnik & Sanches de Oliveira, 2019) results in reductionist accounts that deepen the “explanatory gap,” failing to contribute to the understanding of lived experience.

2.3. Biological basis for the primacy of experience

With the distinction of the phenomenal domains and the claim that as observers, we carry out our lives within what they called the “linguistic domain,” Maturana and Varela (1987) pointed to the fact that all the distinctions we make in relation to the world around us (and all the phenomena about which we ask ourselves questions, such as, for example, “consciousness”) are manifested primarily in our experience. In “Maturanistic” jargon, language does not refer to speech nor to the symbolic system of interactions, but to the consensual behavioral coordinations that have, at some point in the hominid phylogeny, stabilized as a way of life, and that their recursive operation gave rise to the domain of semantic distinctions.

“This recurrent participation of hominids in the linguistic domains they generate in their socialization must have been a determining dimension in the eventual extension of these domains, up to the recursion that gives rise to language when linguistic behaviors become objects of such behavioral coordinations.” (Maturana & Varela, 1984, p. 145, our translation)

As observers (including observers of ourselves), we always operate in the linguistic domain. Therefore, it is in this domain, and not in phenomenal domains of the sub-components of human beings as living organisms (e.g., our brains or neurons), that cognitive phenomena and experience arise and can be accounted for.

3. Raising some of the challenges of the study of experience from the enactive approach

In this section, we will take a look at some central questions encountered in the scientific study of experience, centered around three topics: (a) memory, (b) expression, and (c) intersubjectivity.³ Cutting across theoretical, epistemological and methodological planes, the way these topics are conceptually understood and practically handled in the context of the study of experience has important implications for setting the standards and validation criteria for first-person research, and for understanding the meaning and the epistemic status of its findings. While our indication of the challenges is only a small preliminary step, we believe that their future systematic exploration could be crucial for advancing the construction of a common ground, understanding, and standards for the study of experience.

3.1. The challenge of memory: How should we understand the process of recalling and relating to past experience, and what implication does this understanding have for the understanding of epistemology and validity of first-person research?

Any first-person methodology faces the challenge that experience is described in retrospect. Even when describing a very recent or even a just-elapsed experience, there is always a delay, no matter how small, that implies a gesture of observing, describing, and reflecting upon something that has already happened. This central aspect of the study of experience requires, albeit sometimes implicitly, an understanding of the phenomenon of memory that translates into methodological strategies as well as conceptual and epistemological questions.

A standard objectivist criticism to the study of experience made on the account of memory is that we cannot access our past experiences with precision since the constructive dimension of remembering subjects them to “temporal” and “interpretative” distortion (see [Petitmengin & Bitbol, 2009](#))—an argument strengthened by invoking people’s capacity for confabulation, self-deception, and the creation of so-called “false memories” (e.g., [Nisbett & Wilson, 1977](#); [Loftus et al., 1978](#); [Johansson et al., 2005](#)). Methodologically, proponents of first-person methods (even when they might not themselves subscribe to an objectivist view) have responded to this worry by developing specific tools aimed at minimizing such distortions. Descriptive experience sampling, for instance, uses a beeper in order to minimize the temporal gap between the experience and its examination; the idea is to catch “pristine” experience as it has just passed—and thereby before it could be modified by the constructive acts of retrospection ([Hurlburt & Akhter, 2006](#)). Micro-phenomenology uses a different strategy: it allows for an investigation of recent as well as older experiences, but relies on specific methodological tools that would decrease the possibility of false memories (e.g., [Petitmengin et al., 2013](#)); additionally, it has also developed first- and third-person criteria indicating the extent to which the person whose experience is being examined is “in contact” with their past experience (see [Petitmengin, 2006](#); [Petitmengin & Bitbol, 2009](#)).

By contrast to an objectivist view of remembering past experience, an enactive understanding of this process acknowledges that it is only from our *present experiencing* that we can relate to our *past experience*. As pointed out by [Petitmengin and Bitbol \(2009, p. 383\)](#),

“nobody can live an experience ‘in the past’, there is no other experience than the present. It is therefore impossible to ‘re-live’ a past experience, or to access it ‘retrospectively’, through a problematic splitting into two that would enable subjects to

observe themselves. In the evocation state, the subject lives a new experience. Therefore the question of knowing in abstracto, from a ‘cosmic exile’ standpoint, if the experience of evocation coincides with the initial experience, or is a true copy of it, is epistemologically irrelevant. It is only from within current experience that the existence of any alleged match between experiences can be investigated [...] ‘[B]eing true to’ does not hold between two experiences, but as an internal mark of one experience.”

In other words, as there is in principle no third-person way of attaining the intended past experience so as to compare it to the presently generated report, one cannot possibly verify that the intended past experience (as it was lived in absence of observation) corresponds to what is given and described in the present act of first-person inquiry. Instead, the only suitable basis for examining the process and epistemology of relating to the past experience is the first-person basis of the present experience of such relating.

This recognition, however, has so far received unsatisfactory theoretical substantiation. While the fields of psychology and cognitive science have long recognized the active, dynamic, and constructive nature of remembering (e.g., [Bartlett, 1932](#); [Neisser, 1996](#)), the mainstream cognitive-scientific accounts still largely depict memory as a storage space, and remembering as a retrieval mechanism that should—as long as it works “correctly”—recover the content stored in the past with no variations.

In order to develop more suitable epistemological and methodological views on the process and results of investigating and describing (past) experience, the field of first-person research requires a more nuanced theoretical and practical understanding of memory—one that goes beyond the narrow and phenomenologically uninformed objectivist models in cognitive science. A promising start in this direction would be to examine contemporary accounts of memory compatible with the enactive approach (see, for instance, [Brouillet, 2020](#); [Caravà, 2020](#); [Hutto & Peeters, 2019](#)), the phenomenological concept of body memory ([Fuchs, 2012](#)), as well as accounts of memory that first-person researchers have already employed to theoretically support the epistemology of their methods.⁴

Importantly, any emerging theoretical understanding of memory suitable for grounding the understanding of knowledge generation and validity in first-person research would have to be informed by and compatible with the first-person insights into the *experience of remembering past experience* within the act of first-person inquiry. To this end, the theoretical examination of the models of memory compatible with the enactive approach would need to be combined with a complementary methodological-practical exploration of the pragmatics of experiencing remembering (as we will further elaborate in the next section).

3.2. The challenge of expressing experience: How should we understand the relationship between experience and language—and what does that imply for the process of describing experience? Can a clear line be drawn between describing and expressing?

Research on experience, as any kind of research, requires intersubjective validation. Therefore, although it is possible to conceive of an inquiry into, for instance, one's own experience without the requirement to express the process and the outcome of that inquiry, practically, in the context of scientific research, there can be no inquiry without expression or communication. But must such expression or communication necessarily be *verbal*?

In *On Becoming Aware*, Depraz et al. (2003) claim that first-person research requires “a linguistic description of the content intended by the reflecting act.” In their understanding,

“if you can't produce a linguistic description, the rest of our methodology stays in the dark [...] It would be as if you jumped directly from reflecting on something to the polished public presentation of distinct essences. This would bury all the *intermediate* work needed to get to that point; all that work would remain private and would seem to be completely implicit knowledge, folded away in yourself.” (Depraz et al., 2003, p. 66)

Although this requirement may seem quite simple in theory, it opens up complex questions in the practice of first-person research. For instance, researchers may face the problem that different people show different abilities to describe their experience. These differences could be related to different abilities to get in touch with a given experience, different abilities to perform the reflective act, different ranges of linguistic expressions (potentially related to social, educational, cultural differences, etc.), or a combination of this variety of factors. An obvious question that arises is whether—and if so, how—these differences in the ability to describe experience relate to potentially different ways of experiencing. In other words, how do we understand the relationship between experience and language?

Under an objectivist framework, which would expect the linguistic description to ideally accurately “represent” the examined experience, the differences in people's ability to describe experience present a major obstacle as they make it difficult—if not impossible—to compare between uneven descriptions and to establish unifying criteria for further analysis and validation of results.

Under the enactive approach, however, language is understood as an embodied act, enabling us to understand the process of describing experience as a part of its

exploration—and therefore as a part of the very experience of becoming aware.

Considering the biological roots of the enactive proposal presented above, words *are* actions, and it is within language itself that the act of knowing brings forth a world: “We realize ourselves in a mutual linguistic coupling, not because language allows us to say what we are, but because we are in language, in a continuous being in the linguistic and semantic worlds we bring to hand with others” (Maturana & Varela, 1984, p. 155, our translation). A similar understanding of the relationship between language and expression is put forward by Maurice Merleau-Ponty, whose philosophy presents another source of the enactive proposal (see Varela, Thompson, & Rosch, 1991). Criticizing the idea of language as the “sign” of thought or the means of its fixation, Merleau-Ponty argues that “[t]he word and speech must somehow cease to be a way of designating things or thoughts, and become the presence of that thought in the phenomenal world, and, moreover, not its clothing but its token or its body” (Merleau-Ponty, 2005, p. 211).

Therefore, it can be considered that under the enactive understanding, the descriptive act reflects—or even partially constitutes—the mode of experiencing. It is important to note that the relationship between experiencing and describing is not static. Indeed, Depraz et al. (2003) remind us that when carried out with a phenomenological attitude, examining experience is linked to the attempt at suspending our habitual presuppositions about experience and its intended contents: in the case of verbal expression, this includes suspending our habitual presuppositions about words. In other terms, in order to express our observations regarding experience, we are to suspend the habitual way we relate to words “in order to let meaning arise in all its intensity” (Depraz et al., 2003, p. 68).

This point is also crucial in addressing another practical issue that arises in relation to verbal description of experience in first-person research: the case in which linguistic concepts do not manage to grasp all the aspects of experience. Challenging the above-mentioned demand that expression in experiential research must necessarily be verbal (Depraz et al., 2003), we encounter situations in which words fail to express a given experience or an aspect of it (for instance, “unspeakable” and “ineffable” experiences; cf. Coupé & Ollagnier-Beldame, 2019). Following the understanding of language as an act, more than the actual word or concept, what seems to be the key for expressing experience is the performance of the act of suspension. This act can lead us to non-verbal expressions (such as gestures, movements, and expression through visual arts) that can serve as alternative or complementary ways to help a person communicate her experience. These alternative forms of expression, as we will elaborate and exemplify in Section 4, may even turn out to be a more appropriate means of communicating the result of a certain investigation.

Some authors have suggested distinguishing between the *descriptive* and *expressive* function of language in relation to experience (Bitbol & Petitmengin, 2011), where the example of the former would be describing an experience through a micro-phenomenological interview, and the example of the latter would be an attempt at expressing perhaps the same experience through writing a poem about it. While important to keep in mind, we think that the dividing line between the two functions in the case of studying experience is difficult to draw—especially when one adopts the enactive understanding of language and expression as an act.

The way in which verbal, para-verbal and non-verbal means of expression can open up new possibilities for exploring experience has already been documented in empirical studies (see Petitmengin et al., 2007—the example of the non-verbal gesture in the case of participant Christelle, p. 751; and Kordeš, Oblak, Smrdu & Demšar, 2019—the example of the concept “gist,” pp. 202–203). However, further examination of the nature and role of describing and expressing experience is needed in order to establish guidelines for validating and comparing first-person accounts.

An insight that could shed light onto the relationship between describing and expressing experience in the context of first-person research—and calls for further exploration—is Merleau-Ponty’s distinction between the “speaking word” and the “spoken word.” Rather than attempting to draw a clear line between the expressive and the non-expressive (or descriptive) function of words, this distinction points to the level of contact we have with our experience in the *process* of putting it into words. According to Merleau-Ponty, in the *speaking word*, “the significant intention is at the stage of coming into being” (Merleau-Ponty, 2005, p. 229), whereas in the *spoken word*, the meaning is already acquired, instituted: “[Spoken words] arouse in us only second order thoughts; these in turn are translated into other words which demand from us no real effort of expression and will demand from our hearers no effort of comprehension” (Merleau-Ponty, 2005, p. 214).

3.3. The challenge of intersubjectivity: How to understand the relational and participatory dimension of first-person research, and take it into account in the understanding of research results?

Experience as it is given in the first person is, by definition, directly accessible only from the first-person position of the person who lives it. From the objectivist perspective, this truism has been widely used to question the very possibility of the scientific study of experience. Since experience and the results of its (strictly first-person) observation cannot be readily shared—the reasoning goes—they cannot be

subjected to intersubjective scrutiny, corroboration, and verification by the scientific community (including validation through repetition of observation or experimentation) and therefore cannot lead to scientific results (see Bitbol & Petitmengin, 2013; Petitmengin & Bitbol, 2009).

However, first-person researchers argue that despite its original givenness to only one subject, experience *can* be communicated and made accessible to others through the creation of shareable descriptions or expressions of experience (see the previous subsection). In the context of scientific investigation, intersubjectively accessible first-person data on initially “private” (Hurlburt, 2011; Petitmengin, 2006) or “subjective” (Bitbol & Petitmengin, 2013) experiences can enter processes of scientific consideration—including analysis, abstraction of invariants, comparison, validation, and replication of the research process—and potentially become part of scientific knowledge.

In addition to being crucial for the processing of already acquired first-person data, the intersubjective dimension of studying experience is present throughout all stages of the research process, starting with the very beginning of observing experience and acquiring data about it. In this vein, Depraz and colleagues argue that scientific investigation of experience requires what they call the “second-person position”—a position referring to “an *exchange between situated individuals* focusing on a specific experiential content developed from a first-person position” (Depraz et al., 2003, p. 81). Providing a bridge between the direct first-person position of the experiencing subject and the third-person position of a disembodied scientific community, the second-person position is “typically instantiated in a tutor or guide, someone who has more training in or exposure to a certain domain, and who tries to help the expression and validation of someone else” (Depraz et al., 2003, p. 81).

In this way, in some of the central well-established first-person methods,⁵ data on experience is acquired with the help of an interview, whereby an expert interviewer assists the interviewee (i.e., the person whose experience is being investigated) to attend to and express particular aspects of her experience according to the method’s guidelines. Along these lines, the micro-phenomenological interview has been explicitly dubbed a “second person’ method,” referring to its being “a method enabling the gathering of ‘first person’ data, i.e., data that express the viewpoint of the subject himself, in the grammatical form ‘I...’,” but which have been “gathered through another person (a ‘You’)” (Petitmengin, 2006, p. 231). Similarly, descriptive experience sampling is characterized as a “first-person-*plural* method” (Hurlburt, 2011, p. 58; italics in original) in which the participant and the investigator (together) examine the participant’s experience and (together) evaluate the results of this examination. In these interviews, the interviewer is

not only a passive listener of the emerging descriptions of experience, but instead actively guides the interviewee toward noticing and/or articulating specific aspects of experience. The interviewee, on the other hand, is actively examining her experience in a way that supersedes a typical subject of psychological research: without her investment and openness toward the exploration of her own experience, even the most skilled interviewer will not be able to assist the interviewee in providing valid first-person data.

The described relational and participatory nature of first-person inquiry raises questions about data and knowledge generation that are difficult to explore from an objectivist point of view. For instance, What, “where,” and “whose” is the unit of examination to which the results of first-person inquiry pertain: is it the original past experience as remembered by the participant, hidden from the others in the sphere of her first-person experience and her capacity to remember—or is it the sum of articulated observations and expressions as they were jointly co-constructed in the participatory process of interview and/or analysis? To what extent (and in what way) is the person whose experience is being investigated involved in the different stages of the research process—and to what extent (and in what way) should she be? And conversely: How to deal with the constructive role of the researcher and the role she plays in shaping the expression and examination of target experience throughout the research process?

The participatory dynamics of examining experience calls into question the standard understanding of the experimenter-subject dyad in experimental psychology. With regard to the role of the participant in particular, various first-person methods recognize that in the study of experience, the participant must herself become an empowered co-researcher (or sometimes even the principal researcher, e.g., Depraz, 2021; Sparby, 2019), whose proficiency in self-examination bears a major part of responsibility for the validity of acquired first-person data (Hurlburt, 2011; Kordeš & Demšar, 2018; see also Bitbol & Petitmengin, 2013). Some first-person methods or studies translate this idea into longitudinal multi-phase research designs (e.g., Kordeš et al., 2019; Kordeš & Demšar, 2021a; Oblak et al., 2021), training participants prior to the collection of first-person data (Hurlburt, 2011; Kordeš & Klauser, 2016), and/or systematically including participants in the processes of validation and analysis of acquired first-person accounts (Oblak et al., 2021).

At the same time, first-person research also demands a high degree of autonomy on the part of the researcher. For most first-person methods, at least a part of the procedure for examining experience (e.g., the specific questions asked in the interview and decisions taken in the process of analysis) is not prescribed in advance, but can be better described as ongoing skillful engagement within which the researcher responds to the continuously developing research situation

and its emerging outcomes. In this light, interviewing has been compared to expertise, an artistic skill.

The degree of freedom and even creativity that is typically necessary on the part of both the researcher and the participant undermines the usefulness of classical concepts from psychological research, such as “subject bias” and “experimenter bias” (e.g., Weber & Cook, 1972), for understanding the constructive dimension of the research process in first-person inquiry. While many methods emphasize the importance of systematically bracketing both researchers’ and participants’ presuppositions at different stages of the research process and stress the requirement to examine experience in an open and non-leading way (Hurlburt, 2011; Kordeš & Demšar, 2021a; Petitmengin, 2006; Valenzuela-Moguillansky & Vásquez-Rosati, 2019), dealing with the inherently constructive roles of the researcher and the participant in the examination of experience and analysis of the results could benefit from a more comprehensive cross-methods understanding.

In summary, while first-person researchers have provided some specific conceptual and practical responses to the challenge of intersubjectivity, these have remained largely enclosed within each specific method. Furthermore, these responses have not yet been systematically related to a broader understanding of intersubjectivity in scientific research and collaborative epistemic processes. The enactive account of participatory sense-making (De Jaegher & Di Paolo, 2007), focusing on types of social interaction in which the emerging meaning cannot be accounted for by reducing it to the sum of the contributions by participating individuals, has already been suggested as a promising starting point for describing the collaborative co-construction of knowledge in first-person research (Kordeš & Demšar, 2018; see also Froese, Gould & Seth, 2011). However, a more elaborate examination of enactive and phenomenological accounts of intersubjectivity and collaborative epistemic processes could enable a construction of a cross-methods framework for understanding the intersubjective dimension of first-person research. This could in turn support an implementation of within- and cross-methods guidelines for conducting and validating first-person research that would take into account its participatory and relational dimension throughout the research stages.

3.4. Enactive approach to epistemology and validity of first-person research

The outlined challenges point to the specific research characteristics of first-person research that—as we hope to have demonstrated—cannot be brushed aside by assimilating experiential research into an objectivist framework. As we have seen, first-person research is characterized by its undeniable dependence on subjective experience, along

with particular epistemic processes involved in its examination: acts of *remembering* the examined experience, acts of articulating and (verbally or non-verbally) *expressing* aspects of this experience (or rather: of the experiencing accompanying its examination), and acts of examining the intended, originally “private” experience in a collaborative and participatory *intersubjective* setting.

In light of these characteristics, while first-person research may be *set apart* from other scientific domains that are more easily labeled as third-person, this does not mean that it must also be set *in opposition* to them. From the point of view of the enactive approach, epistemic processes involved in the creation of scientific knowledge are always to be conceived as a specific subset of human cognitive and epistemic processes—“a highly refined distillation of our embodied sense-making” (Thompson, 2016, p. xxvii). Emphasizing the interdependence and mutual codetermination of the knower and the known, the enactive approach recognizes that science always departs from, relies upon and unfolds against the background of the life-world of lived experience (cf. Husserl, 1970). In this sense, “scientific models are distillations of our embodied experience as observers, modelers, and interveners,” and “scientific knowledge ... is an expression of the relation between our embodied cognition and the world that it purports to know” (Thompson, 2016, p. xxvii).

This enactive understanding of science as an epistemic activity, carried out as a collaboration of human beings embedded in their experienced worlds, is reflected in the neurophenomenological proposal and its view of the relationship between first-person and third-person accounts in cognitive science. In distinguishing between and comparing the two, Varela reminds us that

“the usual opposition of first-person vs. third-person accounts is misleading. It makes us forget that so-called third-person, objective accounts are done by a community of concrete people who are embodied in their social and natural world as much as first-person accounts [...]. The line of separation – between rigor and lack of it – is not to be drawn between first and third person accounts, but determined rather by whether there is a clear methodological ground leading to a communal validation and shared knowledge.” (Varela, 1996, p. 340)

Compared to the third-person side, for which the epistemological and methodological frameworks and standards of validation have been refined through centuries-long self-correcting developments of the scientific community, the epistemological and methodological ground of first-person research is still underdeveloped. We suggest that dealing with the described challenges of memory, expressing experience, and intersubjectivity in the context of studying experience is of utmost relevance for improving this ground, particularly in relation to understanding the overarching

question of the epistemic status and validity of first-person research and its findings.

While our identification of these challenges is only a first step, in-depth analyses of topics such as the process of remembering past experience, the relationship between experience and its verbal expression, or the nature and role of the second-person relational character of first-person investigations—to list just a few examples—could ultimately translate into establishing improved methodological standards and criteria for the study of experience.

4. Somatics as an example of a methodological resource for the scientific study of experience

The idea that the study of experience in the context of cognitive science could be enriched by incorporating theoretical and practical insights from other, scientific or extra-scientific areas aiming at exploring or coming into contact with experience is far from novel. A very successful example of such continuous enrichment can be found in pairing the scientific study of experience with contemplative practices, already suggested at very outset of the enactive approach (Varela et al., 1991) and the neurophenomenological program (Depraz et al., 2003; Varela, 1996; Varela & Shear, 1999b), as well as concretized within some of the first neurophenomenological studies (e.g., Lutz et al., 2002).

In this section, we focus specifically on the case of somatic practices, which we find particularly relevant for addressing the challenges of the study of experience identified above. As a field, somatics share some of the basic principles of the enactive framework outlined above (i.e., non-objectivism, non-reductionism, and the recognition of the primacy of experience); in addition, they highlight the dynamic, transformative and self-referential character of the study of lived experience. While certain insights from the field of somatics, as we will see below, have already been taken into account (e.g., Hendricks, 2009; Schoeller, 2016), the overlap of somatic practices and first-person research and their potential for mutual enrichment has not yet been explicitly suggested and/or systematically explored.

We suggest somatics as a suitable pool of resources for a methodological-practical exploration of first-person research for three main reasons: a) somatic practices are specifically interested in the human being as experienced from within, that is, from the first-person perspective, and for this reason focus on the development of techniques for becoming aware; b) as a consequence of the above, somatic practices highlight the dynamic character of experience and of its study, emphasizing a central aspect of Varela’s proposal that has been mainly overlooked in the integration of the study of experience into cognitive science; and c) in dealing with lived experience in the context of physical and

psychological health, somatic practices pragmatically address some of the challenges of first-person research that we identified in the previous section. In what follows, we turn to each of these three points.

4.1. Cultivation of sensing from within

Somatics refers to a group of different methods or “somatic practices” within the field of bodywork and movement studies that emphasize internal bodily perception and experience (e.g., [Hanna, 1995](#); [Johnson, 1995](#)). Based on the assumption that within the very nature of human observation we find two distinct points of view for observing the human being—that of perceiving the human being from within (i.e., from a first-person perspective) and that of perceiving from without (i.e., from a third-person perspective)—somatics focuses on the study of the human being as perceived from within.

Also called “somatic education,” these practices work on the development of attentional dispositions and capacities for sensory awareness, which is considered the primary means by which an organism senses and “knows” itself and through which it organizes its responses to internal changes and external perturbations ([Juhan, 1995](#)). In this framework, attention is considered part of the sensorimotor system, involving the activation and/or inhibition of muscle fibers, and thus modulating self-regulation processes. As explained by Tomas Hanna, who introduced the concept of somatics, the techniques and exercises employed by somatic practices seek to broaden attentional capacity to allow the expansion of the range of volitional awareness and the decrease of conditioned responses ([Hanna, 1995](#)). In this way, although somatic practices have not been conceived directly for the study of experience, they provide tools for developing attentional and observational resources. Therefore, they can be useful for gaining familiarity with embodied experience and cultivating the very act of *becoming aware*, which is a fundamental ability that has to be trained in any type of attempt to study experience.

4.2. Dynamic understanding of experience: From experience to experiencing

In his article published in *The View From Within* ([Varela & Shear, 1999b](#)), [Carl Ginsburg \(1999\)](#) draws attention to how cognitive science has traditionally treated the problem of consciousness as that of explaining a *state* (or an “ingredient” of a mental state) instead of being regarded as an activity, that is, something we *do*. Through different examples from his experience as a practitioner of the Feldenkrais method ([Feldenkrais, 1964](#)) (a somatic practice), he shows how changes in the organization of movement are closely related to changes in lived experience, concluding

that without movement no cognitive process would be possible. In a similar vein, Bonnie Bainbridge Cohen, developer of the Body-Mind Centering method, underlines the fact that not only is perceiving an action, but that movement is, in itself, a means through which we perceive. According to [Bainbridge Cohen \(1995\)](#), the capacity to sense movement is what gives the referent for all other perceptions:

“Not only movement is a perception, but as the first perception of learning, it plays an important role in establishing the baseline for our concept or process of perceiving. This original process of perception then becomes incorporated into the development of the other perceptions.” ([Bainbridge Cohen, 1995](#), p. 195)

As put forward by Hanna, somatics recognize that self-observation is by nature a dynamic phenomenon, an act that changes the previous state of the organism:

“The human is not simply a self-conscious soma, passively observing itself (in addition to observing its scientific observer), but is doing something else simultaneously: it is acting upon itself; that is, it is always engaged in the process of self-regulation.” ([Hanna, 1995](#), p. 344)

These perspectives, the result of an experiential analysis, are consistent with the understanding of perception within the enactive approach, and specifically the view developed by Maturana through his biological analysis. Under Maturana’s vision, the phenomenon connoted with the word perception refers to the result of a behavioral configuration, that is, the perceptual object appears as such as a result of a set of dispositions and doings that are established and consolidated throughout the history of interactions between the organism and its environment (e.g., [Maturana & Mpodozis, 1987](#)).

These examples show how, in general terms, somatic practices treat the question of lived experience by inquiring into experiencing (as a process) rather than experience (as a state), which is compatible with the enaction-based theoretical view presented in [Section 3](#).

4.3. Somatics and the challenges of first-person research

Although somatic practices (to our knowledge) have not specifically or explicitly elaborated guidelines in relation to the challenges outlined in the previous section, they have pragmatically addressed some of the mentioned issues in dealing with lived experience in the context of physical and psychological health, namely, by a) approaching memory from a bodily perspective in the context of the treatment of

trauma; b) developing specific tools to access meaning through non-verbal and para-verbal descriptions based on different forms of body language; and c) problematizing the issue of intersubjectivity in the context of the therapeutic encounter. In what follows, we will look at each of these perspectives in turn.

4.3.1. The challenge of memory. To demonstrate how somatic practices could inform the understanding of memory in the context of experiential research, we will look at the example of Somatic Experiencing (SE).

SE (Levine, 1977; 1986; 1997; 2010) is a method that deals particularly with traumatic experiences. Rather than being concerned with the narrative of the subject's past experience that supposedly triggered the traumatic state, this method treats traumatic experiences by considering the individual's present experience. In a nutshell, it seeks to expand the subject's awareness of the present sensations to track bodily responses related to the activation of the autonomic nervous system. By experiencing these sensations within an environment and disposition that offer safety and resources to deal with them, the method aims to reconfigure what is called the "traumatic vortex," composed of different elements of the experience (sensations, images, meanings, behaviors, affects, etc.) and a certain physiological stress response (e.g., continuous activation of the sympathetic nervous system), and to thus re-establish baseline (Payne et al., 2015).

For our purpose, what is relevant to underline is that SE works with what the subject experiences in the present moment, assuming that, whether or not she remembers the event that generated the trauma, the individual embodies the meaning of the event (or set of events) from the present moment. In this way, even if implicitly, this method shows an understanding of the phenomenon of memory that considers experience as a dynamic process.

If we take this understanding to the context of experiential research, the question of memory is reframed. It no longer focuses only on the question whether or not the remembered experience corresponds to the past. In theoretical terms, the problem is reframed to understand what are the conditions that participate in the appearance of a given memory. In practical terms, such theoretical understanding of memory can translate into, for instance, particular methodological moves, such as directing interview questions toward what appears in the present moment while the interviewee is in touch with the evoked experience.

4.3.2. The challenge of expressing experience. Somatic practices have developed techniques for dealing with or inquiring into aspects of experience that are not yet "crystallized" into words—techniques that, for instance, operate on a primarily non-verbal level, that aim at translating the non-verbal aspects of experience into words, etc.

In the context of trauma treatment, for instance, people sometimes might not be able to remember or verbally describe the event that triggered the traumatic response. The traumatic event may even have occurred in a state in which the individual lacked full conscious awareness or did not yet possess verbal language. In these cases, it is necessary to have alternatives to verbal description to help the person get in touch with the embodied meaning of the experience that cannot be accessed through narrative. In SE, the development of sensory awareness helps to enable the manifestation of bodily cues (such as sweating, flushing, and changes in respiratory rate) that can guide the subject toward carrying out and completing a response that could not be brought to completion during the traumatic event (e.g., a protective or avoidance response such as pushing away).

Gestures, body movements and sensations can also serve as gateways to words. For instance, Kolter et al. (2012) argued that body movements performed in the absence of speech may provide the experiential material for the generation of metaphors, which can in turn help the transition from implicit body memory to explicit verbalized memory.

A different example is the use of expression through visual arts. We have used drawing and painting to explore the experience of pain (Valenzuela-Moguillansky, 2013; Valenzuela-Moguillansky et al., (2021). In Valenzuela-Moguillansky et al. (2021), for instance, we employed the body mapping method (Gastaldo et al., 2012) to explore moments of new understanding within the recovery process in women with fibromyalgia. Body mapping is a visual, art-based process of creating a real-size drawing of the person's own body to express a certain aspect or process of this person's experiences. The inclusion of the body mapping allowed the addition of a non-verbal descriptive layer that enriched the understanding of the participants' experience and also enriched the verbal descriptions acquired with micro-phenomenological interviews. In many cases, participants who did not manage to deepen their description during the micro-phenomenological interviews did so during the body mapping. This example shows that expression through visual arts can be used both as a tool for expressing experience in an alternative (i.e., non-verbal) way, but also (alternatively, or at the same time) as a means of facilitating the process of the verbal expression of experience.

A somatic method that has developed elaborate theoretical and pragmatic tools to frame the process of putting experience into words is *focusing*, developed by Eugene Gendlin (Gendlin, 1973, 1978, 1996). A central aspect of this method is attending to what is called "the felt sense," described as "the wholistic, implicit bodily sense of a complex situation. It includes many factors, some of which have never been separated before [...] Despite its intricacy, the whole felt sense also has a focus, a single specific demand, direction, or point" (Gendlin, 1996, p. 163).

In resonance with Merleau-Ponty's distinction between the speaking and spoken word, as well as with the idea of suspending the habitual way we relate to words, introduced in the previous section, focusing offers tools to assist a person in the process called *carrying forward*. This process consists of attending to the felt sense and accompanying its form of manifestation, with the aim of finding the words, phrases or actions that resonate with the felt sense. This allows the process of meaning-making that moves the felt sense and orients it forward:

“[W]hen the right words are found, the felt sense opens; it flows forward. Where before it was stuck, now it flows into the meaning of the words. These words become continuous with the felt sense. With them the felt sense moves and opens.” (Gendlin, 1996, p. 163)

These different examples suggest that the meaning carried by a given experience may be embodied, but not (yet) readily expressible. Non-verbal (including artistic) expressive languages that are used in different somatic practices can help to unfold the act of becoming aware of such in a way that they can be expressed and communicated. This can be accomplished both by using these alternative languages as means of expression and/or as means of facilitating the process of putting into words.

4.3.3. The challenge of intersubjectivity. Contrary to what happens with research framed in an objectivist framework, where results are sought to be independent of and not influenced by the researcher, somatic practices recognize the relationship between the facilitator (an educator or a therapist, depending on the specific context) and the subject as central to the process of becoming aware. While the question of how to incorporate the intersubjective aspect into their endeavor does not arise as such, somatic practices, particularly in the therapeutic context, have sought to understand the intersubjective relationship as part of the therapeutic encounter and outcome (e.g., Beebe et al., 2005). We suggest that some of the tools used to this end can offer resources for addressing the question of how to work with intersubjectivity in first-person research in relation to different elements of the research process.

One possible area of exploration is the dynamics of the interaction between the researcher and participants and how it may shape the research process and its outcomes. Exploring these dynamics could be informed by tools such as the Kestenberg Movement Profile (KMP)—a systematic non-verbal instrument that helps to assess movement behavior and its related meanings in diagnostic, therapeutic and research contexts (Koch & Müller, 2008). KMP has been used to assess movement patterns indicative of relational functioning within the dynamics of naturally occurring movement (Kestenberg et al., 2018) as well as in the

case of specific task-driven context (Kolter et al., 2012). Interestingly for addressing the issue of intersubjectivity, Samaritter (2010) used KMP in the context of “Shared movement,” a method for dance psychotherapeutic intervention, to analyze the movement aspects that are involved in interpersonal kinetic engagement.

A different example is the Vocalization-Silence Dynamic Patterns (Tomicic et al., 2016), a tool that has been used for studying vocal coordination patterns in psychotherapeutic conversation to examine the association between interactional coordination and positive therapeutic outcomes. Coordination in therapeutic interaction has been regarded as an expression of the patient–therapist regulation processes, which is considered to be the basis for the construction of the intersubjective matrix that makes change in the patient possible.

Somatic practices also offer tools that can be used to deal with and explore intersubjectivity at the level of analyzing experiential data. For example, in the above-mentioned study of fibromyalgia (Valenzuela-Moguillansky et al., 2021), we integrated some principles of the Authentic Movement method (Adler, 2002), originally created as a group psychotherapy tool, to account for the experience of the researcher in the analysis and interpretation of the body maps.

4.4. Implications for the study of experience in the context of cognitive science

In Section 4, we have presented an overview of how the field of somatics can be a promising candidate for combining the theoretical examination of the identified challenges in first-person research with a complementary exploration in methodological and practical terms. To fully answer how, concretely, the framework of somatic practices can help us in elaborating new theoretical ideas in relation to each of the identified challenges, future research is required. Such research should specifically focus on examining concrete methodological strategies from the field of somatics that can be considered in addressing these challenges; exploring how these strategies impact our theoretical understanding of the issues of memory, expressing experience and intersubjectivity; as well as finding a way to coherently combine theoretical and pragmatic insights under a common framework that is consistent with the enactive approach. (See *Concluding remarks and future directions* for a description of our upcoming research project dealing with these issues.)

Additionally, we can consider that integrating theoretical and methodological orientations that are consistent with the dynamic, transformative and self-referential character of the study of experience will lead us to establish alternatives to some of the traditional requirements and practices of scientific research. For example, recognizing that when

we inquire into the experience of another person, we do something to that person and to her experience—and that this may have important consequences for her life—could open up the way to considering research as a form of transformation or intervention. This consideration implies, in turn, rethinking the requirements for validating our research results (e.g., the requirement that the researcher should not *intervene in*, nor should the tools used *modify the* “object” under study). It also calls researchers of experience to assume an ethical stance toward our inquiries. In practical terms, this could mean designing our studies not just based upon data collection criteria but also considering the potential consequences that designs may have for participants (beyond the standard ethical considerations).

Importantly, we do not mean to suggest that the study of experience requires relativizing the need to adhere to practices that guarantee the rigor of our studies and their results, nor that it is necessary to leave the scientific context in order to study experience. On the contrary, we hope that the ideas presented in this article strengthen the view that it is in fact necessary to reflect on and establish practices that guarantee rigor and at the same time are consistent with the nature of our subject matter. Moreover, we believe that integrating subjective experience in the context of scientific research and working toward developing a consistent framework for its study has implications for how we can understand generation of (scientific) knowledge more generally, specifically in relation to recognizing the first-person perspective at the source of the generation of any kind of knowledge.

5. Concluding remarks and future directions

In this article, we have pointed out the need to advance in the establishment of a framework for the study of experience that would both *take into account* and *account for* the particularities of such study (in particular, the dynamic, transformative and self-referential character of experiencing and of the processes involved in examining experience), providing coherence and clarity in theoretical, methodological and epistemological terms.

While neurophenomenology and its call for a systematic study of experience have initially emerged from Varela and his colleague’s non-objectivist understanding of cognition and knowledge—with the neurophenomenological program originally proposed as the “methodological expansion of the enactivist framework” (Vörös et al., 2016, p. 192)—the study of experience has been largely integrated into cognitive science by attempting to assimilate it into an objectivist framework. To counter this tendency, we have reiterated the relevance of returning to the enactive understanding of the study of experience, emphasizing the

principles of non-objectivity, non-reductionism, and the primacy of experience in the study of cognitive phenomena. In particular, we have argued that the enactive approach can contribute to addressing some challenges of first-person research that we identify as crucial for advancing the establishment of standards and criteria of validity, as well as for understanding the meaning and epistemic status of the results of experiential research. We have organized them around three axes: the challenge of memory; the challenge of expressing experience, and the challenge of intersubjectivity.

We have suggested that any epistemological and theoretical framework that would shed light on the presented challenges would have to be informed by and compatible with first-person insights into the experience related to these challenges within the (experiential) acts of first-person inquiry. To this end, we have proposed to combine the theoretical examination of the challenges, carried out within the enactive approach, with a complementary methodological-practical exploration of experience. We have identified the field of somatics as a promising candidate field that could provide theoretical and pragmatic tools for undertaking the practical exploration of the identified issues of first-person research.

What we have presented in this article is the outline of a research direction that has yet to be implemented. To this end, we have recently set into motion a research project called *Multidimensional Approach to Presence* (MAP). This project aims at, firstly, examining the identified challenges within the framework of the enactive approach, pairing this examination with a methodological-practical exploration of the pragmatics of experiencing informed by the field of somatics, and, secondly, critically analyzing the applicability of the selected strategies in the context of the scientific research on experience in cognitive science.

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Notes

1. We use the expression “first-person method” to refer to all methods employed for systematic acquisition of empirical data on concrete moments and episodes of lived experience from the first-person perspective of the experiencing subject, usually in the form of verbal description; this includes methods that are sometimes called “second-person” (e.g., Depraz et al., 2003; Froese, Gould & Barrett, 2011; Olivares et al., 2015) in light of their relying on a second-person interviews setting for acquiring first-person accounts (see Vermersch, 2010 for a presentation of the different criteria used to distinguish between first and second-person position). With “first-person research,” we refer to the field of research employing such methods.
2. For an overview of empirical studies related to the neuro-phenomenological program, including different methods and means employed for acquiring first-person accounts of experience, see Berkovich-Ohana et al. (2020, p. 3, in particular Table 2).
3. While these challenges may be linked to traditional objectivist criticisms of the study of experience (see Bitbol & Petitmengin, 2013, and the questions posited in Section 1.2), we have identified them as relevant for any type and interpretation (including non-objectivist) of first-person research (Valenzuela-Moguillansky et al., 2021).
4. See, for instance, the reference to “concrete memory” (Gusdorf, 1950), “episodic memory” (Cohen, 1989), “autobiographical memory” (Neisser, 1982), and “passive memory” (Husserl 1925/2001; in Vermersch, 2009) for the support of micro-phenomenology (Petitmengin, 2006) and the “explicitation interview” (Vermersch, 2009).
5. Some methods, such as the technique of self-explicitation (Vermersch, 2007; Depraz, 2021) or the micro-phenomenological self-inquiry (Sparby, 2017), enable an examination of experience that can be conducted largely on one’s own. However, even in these cases, the second-person position (as defined by Depraz et al., 2003) is implicitly present in the training of the self-examination of the researcher; furthermore, dialogical dynamics can be identified even within a reflective act carried out on one’s own (e.g., Sparby, 2017; Kordeš & Demšar, 2018).

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