Studying the experience of meditation through micro-phenomenology [1]

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Abstract
Numerous scientific studies are conducted on the neurophysiological effects of meditation practices and on the neural correlates of meditative states. However, very few studies have been conducted on the experience associated with contemplative practice: what it is like to meditate – from moment to moment, at different stages of different forms of practice – remains almost invisible in contemporary contemplative science. Recently, "micro-phenomenological" interview methods have been developed to help us become aware of lived experience and describe it with rigor and precision. This article presents the results of a pilot project aiming at applying these methods to the description of meditative experience, and highlights the interest of such descriptions for understanding, practicing and teaching meditation.

Introduction
In our society, where interest especially in secularized forms of meditation such as "mindfulness" is growing exponentially, numerous scientific studies have been conducted on the neurophysiological *effects* of meditation practice [e.g. 2-8] and on the neural *correlates* of meditative states [e.g. 9-13]. Many studies have also demonstrated the psychological, clinical and preventive effects of mindfulness, providing important results [e.g. 14-19]. For example, it has been shown that the practice of meditation may reduce stress, anxiety, and depression relapse rates. Although the importance of first-person reports of meditative experience is frequently noted in the emergent field of contemplative science (e.g. 20-29), thus far, what it is like to meditate, from moment to moment, at different stages of a given practice, has barely been addressed [e.g. 30-36]. In some cases, phenomenological categories are used as a heuristic tool to generate hypotheses about the neurophysiological mechanisms of meditation practices [37], but apart from a recent study [38], these categories are derived from the analysis of texts such as meditation manuals, not from phenomenological description of these practices.
This vacuum may be explained by the common assumption that since meditative experience - likeas any experience - is produced by brain activity, the knowledge of its neural correlates is enough to understand what is at stake in meditation and to explain its effects. It may also be

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due to the distrust of introspection in Western science which, ever since Auguste Comte claimed that it is impossible to walk in the street while watching oneself from the balcony, has insisted on its exclusion. Moreover, in contemplative traditions, it is not common and usually discouraged to talk about one's experience, except with one's teacher.

This lack of knowledge about meditative experience seems to hamper the understanding of both the effects of practice and its neural correlates: its effects, because only fine-grained descriptions of the practitioners' experience would enable us to understand the processes mobilized during meditation, that may help to explain such effects [39]; its correlates, because the more the neuroimaging techniques are refined, the finer the level of granularity of description of the corresponding experience needs to be in order to enable the cognitive neuroscientist to make sense of recorded brain activity [40]. Moreover, by focusing on the effects and correlates of meditation, scientific studies seem to forget the essence, the very purpose of this practice which is to train oneself to "see things as they are" (see e.g. [41]). What does this training consist of? What do practitioners experience at different stages of their trainings? To begin to answer these questions, the only way is to ask them what they live. But even for advanced meditative practitioners, who are supposed to have developed a very fine awareness of their experience, it is often not so easy to describe precisely what they actually do when they practice. We applied "micro-phenomenology", a recently developed method allowing one to become aware of one's experience and to describe it with precision, to meditative practice. After a brief presentation of the method, we will give an example of the type of descriptions it enabled us to collect. We will then highlight the interest of such descriptions for the understanding, the practice and the teaching of meditation.

Microphenomenology

Micro-phenomenology is a method of descriptive phenomenology inspired by the "*entretien d'explicitation*" initially developed by the French psychologist Pierre Vermersch [42-45] to help persons engaged in professional practices to become aware of the implicit part of their actions and transfer their expertise. At the instigation of Francisco Varela, this method was adapted to the domain of cognitive science to describe any type of lived experience [46]. It has been complemented ~~on the one hand~~ by a method for analyzing verbal reports and detecting regularities in the form of generic structures [47, 48]~~, on the other hand by methods for evaluating the reliability of the reports and validating these results [45-49]~~.

The particularity of the method is to help the interviewee provide descriptions of the *microdynamics* of *singular* experiences, even in their initially *unrecognized* dimensions. Here is a short excerpt of interview:

- *When I realized that I was gone, the thought vanished.*
- *How did it vanish? Was it instantaneous or gradual?*
- *It was very quick, but it nevertheless took a moment.*
- *And what happened during this moment?*
- *[silence...] I loosen, I loosen my tension on that thought.*
- *And when you loosen your tension on that thought, what do you loosen?*
- *In fact I loosen a light tension in my head.*
- *Where exactly is this light tension in your head?*
- *It is at the top to the right and at the front of the head.*
- *And when you loosen it, how do you go about it, what do you do?*
- *And so on.*

This excerpt shows that the questions of the interviewer are "empty of content": they are limited to drawing the subject's attention to the various moments of the experience, without suggesting any content, for example: "what happened at that moment?", "what happened then?". Another typical question consists in questioning the verbs of action used by the interviewee, for example: "when you loosen this tension, what do you do?", a question which is at the same time very focused and non-inductive, because completely empty of content. It helps the interviewee stabilize her attention on a subtle inner micro-gesture and provide a precise description, without infiltrating any presuppositions. The question "How do you know that your attention is now loosened?" draws the interviewee's attention towards implicit criteria of accurate realization of this micro-gesture. The slowing down of the verbal flow, the presence of hesitations and silences, co-verbal gestures, and the use of action verbs in the present tense are then clues that the subject is not reciting pre-existing knowledge but is discovering previously unnoticed processes.

The iterative structure of micro-phenomenological interviews helps the subject to evoke the experience to be described multiple times, while guiding her attention towards a diachronic mesh which is finer each time. The resulting descriptions are very fine-grained. An interview to elicit a description of a few seconds of experience commonly takes one hour.

The evaluation of the reliability of the reports [49-52] is based on the one hand on the assessment of the content-empty character of the *interviewer's* interventions, and of their ability to guide the interviewee from the expression of generalities, comments, judgments and conceptualizations *about* meditative experience towards the evocation and description of a singular lived experience of meditation. This evaluation is based on the other hand on clues of reliability detected in the *interviewee's* answers, such as the verbal, non-verbal and para-verbal clues of contact of the interviewee with his/her experience, or the consistency of the description in spite of the iterative structure of the interview.

The main difficulty of the method is its apparent simplicity: just like meditative practice, the extreme simplicity of the micro-phenomenological ~~questions~~interview, far from being "natural", is an art which requires ~~a long~~ extensive, long-term training~~, like the simplicity of meditative practice~~.

Describing meditative experience: the emergence of a thought

We began to apply this "experiential microscope" to processes of which meditation practice enables the practitioner to become aware, such as the twofold process of loss of contact with the current situation and generation of virtual ones in mind-wandering episodes. Several experienced practitioners described in detail the early phases of the emergence of a "thought" before it develops into a virtual scene in which the practitioner becomes absorbed. Their accounts suggest the following micro-dynamic process, which remains a hypothesis to be confirmed by further studies.

A thought at first seems to emerge in the form of a tiny "impulse", which one of the practitioners locates in the center of her chest.

> "Not so much an image, but a felt sense that something arises. Like a little movement… a perturbation. It's not a thought yet. It's just a kind of a stirring. Something is about to happen." (Anna)

This micro-impulse is immediately followed by a tension towards this first movement, which seems localized in the eyes and the head, closely associated with a retention of the breathing and a tightening in the throat.

"A tension corresponding to the intention to do something, comparable to the feeling of scrutinizing something visually, of making an effort to see better something far away, which gives a sensation of tension inside the skull." (Anna)

The effects of this tension are the following:

A lack of circulation of the flow of energy in the body: "It is as if life is not flowing completely freely in the body. There is less permeation by life" (Helen)

A feeling of disconnection of the head and the body: "It feels like the head is cut off from the body". (Anna)

The point of disconnection: "The flow of the energy between the body and the head gets built up in the throat." (Anna)

A subtle feeling of discomfort elicited by this disconnection: "It's uncomfortable"; "A kind of, a subtle numbness"; "a feeling, a kind of discomfort"; "Not like feeling nauseous or anything like that, but just like, a sense of that". (Helen)

Usually this process of emergence of a micro-impulse, immediately followed by a tension, remains unnoticed and develops to give birth to a virtual scene in which the attention becomes absorbed. Experienced practitioners are often able to recognize this and to disengage from it.

The *trigger of this releasing* is for Anna the awareness of the feeling of disconnection, itself triggered by the sensation of discomfort associated with this disconnection:

"It's uncomfortable, so it kind of brings attention to itself. That's how I know the disconnection happened." (Anna)

The releasing of the tension may be spontaneous, involuntary, but can also be facilitated by voluntary inner micro-gestures such as releasing the breath and the tightening in the head or the throat, opening the scope of attention and using peripheral vision, or accentuating the awareness and density of the back and bottom of the body:

"I go down, I drag something down in the body. It becomes denser in the lower body." (Lise)

The effects of this letting go or releasing include the disappearance of the emerging thought, a reconnection of the head and the body, a feeling of flow and warmth, of connection between oneself and the world, of dissolution of the rigid border usually felt between them.

Usefulness of the interviews

Understanding effects of meditation

In summary, in several descriptions we collected, as soon as the premise of a thought arises in the form of a tiny "impulse", a subtle tension may have the effect of producing a sense of disconnection between the head and the body or a feeling of discomfort or "numbness". When in the course of mind wandering episodes the emerging thought is transformed into a virtual scene, this loss of bodily awareness may intensify up to a complete loss of awareness of bodily feelings. The descriptions we collected suggest that this loss may elicit a kind of rigidification and partitioning not only between the head and the body, but between "inner" and "outer" space, between the subject and the environment. Conversely, coming back to the present sensations allows life and warmth to flow again. It fosters a reunification of mind and body, self and world, creating a feeling of deep relief, connectedness and freedom.

It seems to us that these descriptions may offer an interesting avenue for explaining the unhappiness said to be associated with mind wandering [53], as well as a possible therapeutic effect of meditation (e.g. [54]*)*. We can hypothesize that the discomfort generated by attentional

drift is not (only) due to the (pleasant or unpleasant) content of the virtual scene, but to the very loss of contact with the intimacy of experience, notably bodily experience. The therapeutic effect of meditation would not be explained by the attainment of a particular experiential content, but by the process of regaining contact with lived experience, regardless of its content. Furthermore, micro-phenomenology opens an interesting line of research on this very process, by giving us the means to investigate the micro-acts that enable us to come into contact with our experience and "see what is there".

Practicing meditation

What do words do to meditative experience? In some contemplative contexts, the use of language is considered as an obstacle to deepening the practice. However, all the practitioners we interviewed agreed that micro-phenomenological interviews helped them to refine, deepen and stabilize their practice. Even if words do not describe an experience completely satisfactorily, they serve as "handles" or "pointers" that enable the practitioner to discriminate subtle aspects which might have vanished without their help:

> "One thing I find with the interview is that it sharpens your awareness, the clarity about what is actually going on. And the sharpening lies in the work that goes into finding words." (Helga)

Furthermore, words may have the power to trigger in the listener or reader the recognition of an experience which was previously unnoticed. The recognition of the experience which is pointed to by the word, and the adoption of this word by the listener, mark the start of a possible intersubjective agreement on that word to designate a particular subtle meditative movement. In other words, the indicial function of words does not prevent the creation of a shared, specialized vocabulary to communicate about meditative experience.

Teaching meditation

Meditation instructors who have been trained in the micro-phenomenological interview method testify that it is also useful for them in the context of their teaching. On the one hand, a more refined awareness of their own practice helps them to refine their meditation instructions. On the other hand, micro-phenomenological interviews with their students help them to obtain a better sense of how they actually practice, to identify better the difficulties they meet, and to develop a richer palette of instructions tailored more precisely to particular individuals at specific points in their development.

Conclusion

Interviews enable us as researchers to begin to collect fine-grained descriptions of the microgenesis of the structures of experience that we usually take for real, such as the rigid separation between inner and outer space, and between subject and object [55, 56]. This work of description helps us to understand better how these structures generate suffering, and to understand better the process through which they sometimes dissolve.

Our pilot study shows that meditative experience is a research object in its own right that is of great value to 1) understand the processes that are involved in meditation; 2) understand their effects, including their therapeutic effects; 3) refine the teaching of meditation; 4) refine our understanding of the concrete processes that underlie some concepts of Buddhist epistemology. Since experience is primary [57], its disciplined micro-phenomenological investigation provides a necessary and irreducible insight into its unfolding.

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