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The Embodied Mind.

Mindfulness Meditation as Experiential Learning in Adult Education

DOCTORAL CANDIDATE: DENIS FRANCESCONI

ADVISOR: PROF. MASSIMILIANO TAROZZI

CO-ADVISOR: PROF. SHAUN GALLAGHER

CO-ADVISOR: PROF. KURT FISCHER

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Table of Contents

Acknowledgments.....	3
Table of Contents.....	5
Introduction	8
1 The theoretical framework: phenomenology, embodied theory, and meditation	11
1.1 A short overview of an encounter	11
1.2 The phenomenological and embodied mind	14
1.3 The body consciousness	20
1.4 Meditation and Mindfulness Meditation: a definition.....	26
2 The Embodied Education	31
2.1 Neurocognitive aspects of mindfulness meditation.....	35
2.1.1 Neurological and physiological effects of meditation	35
2.1.2 Cognitive and functional effects of meditation.....	40
2.2 Educational aspects of meditation	46
2.2.1 Learning by doing: meditation as experiential education.....	46
2.2.2 On becoming aware: educating the mind	60
2.2.3 A reflective mind: self, metacognition, and narrative	68
3 Transforming the first-person perspective: self-consciousness and the embodied experience of meditation.....	74
3.1 Methods for consciousness: qualitative methodological issues for studying the embodied mind	74

3.2 A qualitative study on self consciousness: changes in first-person perspective following meditative practices in beginning and expert adult subjects.....	83
3.2.1 Method	83
3.2.2 Results.....	91
3.2.3 Discussion.....	116
4. Conclusions	120
4.1 The learning mind: meditation as education.....	120
4.2 Qualitative method and the study of consciousness	123
4.3 Future perspectives.....	127
References	130
Attachments	143

Introduction

The practices of meditation and ‘mindfulness training’ recently became subjects of great interest in various professional and scientific fields, from psychology to neuroscience, from philosophy to medicine. This broad scientific interest in the meditative practice follows closely to the gradual spread of popular interest in it, which began in the '60s of the last Century in the United States – especially New York, Los Angeles and San Francisco – and which has then been disseminated throughout the Western world. This phenomenon in both scientific and popular aspects, is part of a general influence that the eastern culture has had on the Western society in the second part of the XXth Century, an influence that seems to be of a certain interest from a sociological point of view. Various are the forms and the reasons of this ‘soft colonization’ and one of them certainly is the fascination that some practices have, such as zen, yoga, thai chi, and meditation itself.

However, the focus of my thesis is not on analyzing this general cultural topic but, more precisely, i) theoretically investigating how meditation and education can work together, and ii) empirically studying the educational and cognitive effects of meditation on adult subject, with special regard to the subjective experience description. In concrete, it is my intention here to assess the value of mindfulness meditation in terms of changes in the so-called ‘first-person perspective’ (FPP), that is how meditation affects self-perception and self-description in expert and beginner meditators. As we will see, through a qualitative study I will assess the educational outcomes of a two month long period of meditation in terms of self-perception and experience description skills on healthy adults, both beginners and experts.

The structure of the thesis is as follows. In the first chapter I will consider the theoretical framework on which my thesis is based on. In particular I will present a short overview of the encounter of phenomenological tradition and cognitive sciences during the last decade of the XXth Century, an encounter that has produced the so-called ‘Embodied Theory’, a school of thought still strongly emerging today. I will especially discuss the themes of consciousness and body consciousness that are fundamental for my thesis. Another short overview is presented on meditation tradition and, especially, on what mindfulness meditation is and where it comes from.

The second chapter is dedicated on presenting how mindfulness meditation practice affects the person. Considering the utility for a pedagogical discourse to evaluate the neuroscientific and cognitive aspects of meditation, we will discuss the main effects meditation has on the brain and the mind; then, I will discuss how meditation fits in well with phenomenological pedagogical theory and practice, how can it be considered as a form of experiential education, with special regard to adult education.

In the third chapter, the results of a qualitative study on self-perception and body perception will be presented and discussed.

Finally, in the fourth chapter, some general conclusions will be outlined about the educational value of meditation, and some suggestions and criticisms will be outlined with regard to the didactic and teaching programs of meditation courses.

1 The theoretical framework: phenomenology, embodied theory, and meditation

1.1 A short overview of an encounter

The beginning was an encounter. Between two different disciplines and school of thought, as different as chalk and cheese. The difference is probably the reason of this definite successful encounter which happened twenty years ago and is still increasing.

Along the last three years I have had the opportunity to investigate a theoretical area which has always fascinated me, which also recently emerged and which has been quickly growing/increasing in the past few years. This area is at the intersection of different fields and different schools of thought, namely phenomenology, cognitive sciences and the dynamical systems theory. Interestingly, meditation has been the initiator and mediator of this encounter (Varela, Depraz, & Thompson, 1991). In this area many different disciplines had and have a role and a function – to name a few, psychology, philosophy, informatics, neuroscience – but educational sciences have been out of the game, voluntarily and not, since the very start. Except for a few authors and scholars, the role of education within cognitive sciences has been voted more to the learning theories or instruction theories than a global, structured and stable pedagogical theory. We are going to see how this area came about and later in the text we will see if and how education can join the embodied movement.

So, where does this connection come from? And what is based on? Let us start from a short historical overview about the main point of intersection between phenomenology and cognitive sciences. As Gallagher says in his recent book

“Brainstorming” (2008), phenomenology and cognitive sciences were and are closer than it was thought; the best case is the ‘case’ of Merleau-Ponty. It could seem a paradox but nowadays Merleau-Ponty – one of the most important phenomenologists – is often considered one of the co-founder of the cognitive sciences (Gallese, 2006; Gallagher, 2008; 2009; Petit, 2006; Sinigaglia 2009) thanks to his outstanding work on perception, self and body, although he and phenomenologists in general are never been considered useful to cognitive sciences till twenty years ago. Merleau-Ponty was not only one of the leaders of the phenomenological movement of that time – straddling the middle of the ‘900 – but he was also extremely interested and qualified for psychology and phrenology, a sort of initial version of neuroscience. Starting from this interest, he fully addressed the topic of the body within the pedagogy and psychology. Reading, for example, “Phenomenology of Perception” (2002), you immediately notice how his attitude always oscillates between philosophical discussion and scientific and experimental data on the knowledge available at that time, as it is commonly done today in philosophy of mind and cognitive sciences. Among others, he deeply investigated the issue of phantom limb, one of the most debated and important topic in the modern cognitive neuroscience as well. The contemporary debate on the issues of the body, the lived experience and perception is much heated debate in current cognitive science, but during the XXth Century Merleau-Ponty has been one of the few to develop a deep and structured analysis of these topics, and he probably did more and better than any other scholar of the time. This explains why when some researchers today want to study and find the philosophical basis of their scientific work, they can not avoid to study the French philosopher or, even, to refer to him as a fundamental reference about this topic.

At the end of the last Century, the work of Merleau-Ponty and phenomenologists was surprisingly and effectively brought into the cognitive sciences

field mainly by a book; that book was ‘The Embodied Mind. Cognitive Science and Human Experience’, and the authors were Francisco Varela, Natalie Depraz and Evan Thompson. That book marked a boundary between the old and new paradigm for the cognitive sciences, a boundary that nowadays is clearly visible. Today, twenty years after the book release, the forerunner work of the early phenomenologists is often considered of a critical importance with regard to the following themes (Thompson, 2007, p. 20): consciousness and subjectivity, intersubjectivity, sociality and social cognition, intentionality, subjective experience, perception, body/embodiment, time, and research methodologies with special regard to qualitative methods. Among them, the ones that are taken in consideration by me for my work are consciousness, body/embodiment and qualitative research methodologies.

The *embodied* approach, unlike the classic cognitivist one that initially came from cybernetics and, later, from informatics and computational approach, deeply re-evaluates the role that subjective experience plays in the construction and expression of cognition and knowledge; following that it recalibrates the research interests and methodologies useful to investigate the so-called *embodied mind*, the mind that is ontologically expressed by the connection with the body and the environment, the mind that has an ontological first-person dimension. This approach – which has few ancestors in some works appeared in the late '70s by scholars as Maturana, together with Varela (1980), and Herbert Dreyfus (1972) – in recent years has considerably grown within the scientific literature, and has produced several currents of thought: embodied cognition or embodiment, grounded cognition, radical embodiment, enactivism, situated cognition and embedded cognition, extended mind, naturalized phenomenology, neurophenomenology.

We can say that everything began with the so-called ‘hard problem’, that is the problem of the phenomenological mind (Jackendoff, 1990). At a certain point cognitive sciences decided to face it, after year of avoiding it. Varela and colleagues pointed out clearly that a switch in the paradigm used till that moment was necessary, from a behavioral and computational one toward a ‘ecological’, a paradigm able to consider the central question for the science of the mind: the problem of ‘Who’, the problem of the subject and of the subjective perception of the world. The question was condensed in the term ‘experience’, which takes together the subject/object relationship in an ongoing, real, live modality and which offers a completely different perspective on the mind and the way to study it.

We will now take a more in depth look at the question of the embodied cognition, consciousness and subjective mind.

1.2 The phenomenological and embodied mind

From the embodied perspective, as well as in Merleau-Ponty, the cognition is not considered only as the results of a series of cerebral functions that somehow and somewhere interface with the body of the thinking subject. Instead, it has to better seen as the result of the constant and structural interface activity with the body and the environment, the result of the sensori-motor information that create the background from which the mind can emerge and the horizon to which the mind can watch (Merleau-ponty, 2002). The body constitutes the cognition itself, it generates it, and it is its phylogenetic and ontological matrix. The somatosensory and motor apparatus can no longer be considered as mere servants of the noblest prefrontal cortex, performers more

or less diligent and skillful command coming from the queen of higher cognitive functions; they rather seem to fulfill the dual role of executive and representative system (Gallese, 2006, p. 299) and they share the basic function of knowledge construction of reality that we constantly put in place (*enact*) (Gallese, 2006, p. 302). Here there is the sense, not only ironic, therefore, of saying that the human being is "out of the head" (Noe, 2010): cognition – as well as meta-cognition, consciousness, self, mind or any other name we want to give to the self-presence – emerges both evolutionarily and biographically from the relationship of the mental and bodily aspects of the human nature, and with the environment, creating the *lived experience* (Gallagher, 2005): therefore, embodied cognition indicates that it does not exist – or we have not found it yet – something like a *view from no-where* (Nagel, 1989), because the thought is always related and dependent by the whole subject and his all biography. The space-time dimensions literally shape the mind (Gallagher, & Zahavi, 2008, pp. 69-85): the thought does not merely relate to the body as an object of the outside world but is made from it (Merleau-Ponty, 2002), it does not stem solely from the interactions in the brain, which is a specific organ, but in person, that is the organism.

So, the problem of the mind recalls the question of the consciousness, which is a topic at the core of phenomenology; indeed it is possible to refer to phenomenology as the science of consciousness. Consciousness is the origin of the so-called ‘hard problem’; Chalmers (1995; 1997) defined “easy problems” the neuroscientific analysis of the cognitive functions (low or high level) such as language, memory, learning, motor control, sight etc., because they clearly are physiological events not simple but reducible to a range of few variable bound to each other by a causal-effect logic and, thus, sooner or later explicable. In this case, the researchers create and face questions

such as: which and where are the cerebral circuits deputed to a specific cognitive function? Which specific cerebral areas get active by a specific stimulus? And so on.

The ‘hard problem, instead, emerges when we switch our interest from the analysis of the operational functions – of a physiological nature – to the analysis of the phenomenological experience of these functions, which are of a subjective nature, that is the way in which a subject perceives himself in the *Lebenswelt* (Merleau-Ponty, 2002), in the real world, through his consciousness. Obviously also consciousness can be treated as an easy problem, within the causal-effect paradigm, because, for sure, also consciousness derives from a biological substrate (which is not the brain but the brain-body-environment dynamic unit). In this case we speak of NCC (Neuronal Correlates of Consciousness, Thompson, & Varela, 2001). But at the same time consciousness has a subjective, qualitative and more complex nature that lies on the fact that only the subject can experience it. In this case we speak of phenomenological mind or consciousness. I can communicate and share the interior states but the others do not have the direct, immediate and natural access to it. The ‘first-person’ dimension of the reality challenges the researcher to investigate the subject while perceiving and describing himself and his own cognitive activity (Shear, & Varela, 1999). In this case the research questions are: which are the subjective dimensions of speaking, hearing, remembering, moving, seeing? How subjects perceive that? How they describe that? And so on. To these questions we can add some others, more pedagogical. Can we educate consciousness? Can we improve people’s ability of being aware? Can we speak of the consciousness as something that can learn to read the reality? Which representation the subject has of himself doing an action? That is to say, when can we speak about someone implicated in the perception of something?

The etymology of the word ‘consciousness’ indicates self-awareness, or interior knowledge of what is going on inside me and to me at a specific moment in a specific place. In 1874, Thomas Huxley argued about what William James called “the automaton theory”, a theory which compared mental states to a steam whistle that contributes nothing to the work of a locomotive (Huxley cited in Pockett, Banks, & Gallagher 2006). At that time, in Europe, it was quite normal to consider humans as nothing more than “conscious automata.” Sigmund Freud pointed out the remarkable influence of unconscious mental processes in ordinary human behaviors (Pockett et al., 2006). We are often unaware of our actions. Even when an action is consciously executed, its memory trace is of such short duration that it is rapidly forgotten. We ask ourselves if we have locked the door or turned off the gas seconds after doing it. Driving home from work, we think about our day: the meetings we had, who is expecting us and, suddenly, we are pulling into the garage. What happened? Which route did we actually take? How did we arrive safely while seeming to pay little or no attention our journey?

This is a shorter version of the ‘long-distance truck driver’ problem described by Armstrong (Gallagher, & Zahavi 2008, p. 45). The questions that arise from these situations are the following: Can I have unconscious perceptions and perform right unconscious actions? Can I do something without knowing that I am doing it?

The answer is yes, we are able to perceive and act in the world without being strictly conscious about what we are perceiving and doing. In a famous experiment, Libet recorded the EEG event-related potential that was already known to precede a voluntary finger movement and compared the onset time of this potential with the time at which his subjects reported becoming conscious that they were about to make each movement. Libet argued that the conscious awareness came before the actual

movement, but after the start of the brain activity leading up to it (Pockett et al., 2006). Actually, he did not claim that his subjects' consciousness was entirely epiphenomenal or acausal, instead he proposed that since it arose slightly in advance of the movement itself, they might still be capable of exerting a veto in the fraction of a second before acting but this claim is debatable.

The intention of some theories is to consider the consciousness completely useless and not credible (Metzinger, 1995; 2004), something that even prevents action planning, control and execution. From the phenomenological point of view, instead, the consciousness is the core of the mind and life, because it gives the sense of what is going on even without having a role in the decision making process. Any experience depends on at least minimal form of self-consciousness which allow to consider the experience as my experience, within the time-space flow of experience:

“Experience happens for the experiencing subject in an immediate way and as part of this immediacy, it is implicitly marked as my experience. For the phenomenologists, this immediate and first-personal givenness of experiential phenomena must be accounted for in terms of a ‘pre-reflective’ self-consciousness. By calling the type of self-consciousness in question ‘pre-reflective’, we wish to emphasize that it does not involve an additional second-order mental state that in some way is directed in an explicit manner towards the experience in question. Rather, the self-consciousness must be understood as an intrinsic feature of the primary experience. (...) I can, of course, reflect on and attend to my experience, I can make it the theme or object of my attention, but prior to reflecting on it, I wasn’t ‘mind- or self-blinding’. The experience was already present to me, it was already something for me, and in that sense it counts as being pre-reflectively conscious.” (Gallagher, & Zahavi, 2008, p. 46)

Gallagher and Zahavi (2005; 2008) introduce the difference between the pre-reflective self-consciousness and the reflective self-consciousness. The latter lies on the first as a bird, flying, lies on the air; you do not see the air but it is right there and it constitutes the background on which every movement can be done. Then the reflective self-consciousness is the background on which every consciousness of something can appear to the subject; even without any reflection on my own mental activity, being conscious of something is always being conscious of someone (Gallagher, & Zahavi 2005; 2008, p. 50). The idea that we already are into the experience prior our own conscious awareness is well explained by this phenomenological concept of 'pre-reflective self-consciousness'. "The notion of pre-reflective self-consciousness is relate to the idea that experiences have a subjective 'feel' to them, a certain (phenomenal) quality of 'what it is like' or what it 'feels' like to have them", without the need to reflect on it (Gallagher & Zahavi 2008, p. 49). We are always already there, before we are able to conceptualize our conscious presence. Experience has always a certain way to manifest itself, and this certain way is certain for someone. In phenomenology, an experience requires a subject; there is a sort of self-referentiality of for-me-ness (Gallagher & Zahavi, p. 50). So, every kind of experience is characterized by a form of *mineness (Meinheit)* that makes the experience meaning something for somebody. The ability of the subject to create meaning about his experience is something that has to be investigated further more by educational sciences because can be improved.

This is the first-personal givenness of the phenomenal experience and it can be split in two different modalities: the *weak and the strong first-person perspective*. The first is related to having or embodying the perspective, the subjective manifestation of one's own experiential life; the second has to do with the linguistic ability to refer and articulate the experience (Gallagher & Zahavi 2008, p. 47). In my studies I tried to

investigate both of them, surely throughout the second one, believing that the two modalities of the first-person perspective are strictly related especially from an educational point of view. Pre-reflective self-consciousness doesn't amount to first-person knowledge; it is a necessary but not sufficient condition. What I investigated with my study that is presented in this thesis is nothing more than the *mineness*, the subjective dimension of the meditative experience.

1.3 The body consciousness

The embodied approach makes clear that in the mind-body relationship the body not only precedes the mind for stimuli reaction but also it is active for the interpretation and comprehension of reality (Gallese, 2006). In fact we must speak of discovery of the sensorimotor and somatosensitive systems given that, twenty years ago, the sensitive system and the motor system were considered as separate; but now we know better that perception and action are so strictly coupled that we have to speak of the birth of the sensorimotor paradigm (Gallese, 2006, pp. 307-308). The ability to understand reality, including the social world, seems to have a pragmatic and prelinguistic nature more than a semantic and representational one (Gallese, 2006, pp. 313-314). So, if consciousness is the awareness of what is happening in a given place in a given moment, what are we precisely aware of? The first object of our perception is our body; the body is the fundamental account of the consciousness (Petit, 2006). Even when we don't intentionally pay attention to the kinetic sensations – and that happens most of the time – the sensorimotor system creates what Damasio call the *proto self* (Damasio, 2000, p. 285), which is comparable with what I said before about pre-reflective self-

consciousness. The body gives us the awareness of being the person we are, the same person of the day before, in a certain environment in a certain moment. Paraphrasing Heidegger, who was used to say that the language is the house of the being, from an embodied perspective we should now say that the body is the house of the being.

Looking deeper at the phenomenological analysis of the bodily consciousness we find important theoretical and philosophical references to Husserl's work and, especially, to the work of Merleau-Ponty, whose distinction between *Körper* (the body as object) and *Leib* (the lived body) is a sort of cornerstone (Gallagher 2006, p.12). This general distinction leads to a theoretical distinction with interesting repercussions in educational practice, between the body as an instrument that can be used in functional and instrumental ways in sports, performance and communication and the body as the expression of the individual identity. There is, in the educational practice, a difference between motor skills education and physical education on the one hand and body education on the other (Calidoni et al., 2004; Farnè, 2008) where the first are more attentive to the development of motor skills and applicative goals (*Körper*) while the second point directly to the development of body identity (*Leib*). The lived body is strictly connected to the way in which the subject can operate in to the world through practical knowledge and *habits*, which are flexible and situationally attuned tendencies towards actions that are performed without explicit thoughts and deliberate reflection prior to action. It is through our habits that we usually interact with the world, and habits are what our body learnt from the interacting experience with the world (Merleau-Ponty, 2002, p. 151).

As Standal points out (2009): "Hubert Dreyfus (Dreyfus, 2002) prefers the notions 'skill' and 'skillful coping' over 'habit' due to the reasons that the concept of habit derives from the behaviorism; "rigid behavior", which is the connotation of habit,

says Dreyfus, “is exactly what Merleau-Ponty is trying to distinguish from the flexible and situation-sensitive skills that make up *l’habitude*” (p. 145). *L’habitude* is the word used in the French text of *Phenomenology of perception*, and which is translated as ‘habit’ in the English edition. But, the notion habit, to Dreyfus, is so infused with unwanted connotations that the use of the word ‘habit’ destroys the intended meaning of *l’habitude*. However, Merleau-Ponty and Dreyfus use habits and skills to denote a flexible, situational, and adjustable ability to act, in the *Lebenswelt* through the *lived body* or *Leib*”.

I am so deeply interested in this notion because I think that meditative practice does not change and affect only the body as object (Körper) but also the way to live the body and to be a body (Leib). Merleau-Ponty was interested in the notion of habit for the same reasons that he was interested in behavior and movement: they are phenomena that can be properly understood neither by intellectualism nor empiricism. Again from Standal (2009, p. 59) “Empiricism would equate habit with the conditioned reflexes, i.e. the behaviourist program of establishing causal links between stimuli and responses. The intellectualist account of habit would be the automatism of mental representations, where proper mental representation is called up and movement executed without conscious monitoring of the acting subject. Merleau-Ponty rejects both these explanations: “Habit has its abode neither in thought nor in the objective body, but in the body as mediator of the world” (2002, p. 167). It is not in thought (intellectualism) or in the objective body (empiricism) that we find the home of habits. It is to be found in the body itself. Merleau-Ponty gives us an example to explain this idea, the example of people who are skillful at typewriting. He states that these people are not in possession of knowledge of the place of each letter among all the others on the keyboard; neither have they acquired a conditioned reflex for each one. What, then, is

the epistemic status of habits? “[Habit] is *knowledge in the hands*, which is forthcoming only when bodily effort is made, and cannot be formulated in detachment from that effort. The subject knows where the letters are on the typewriter as we know where one of our limbs is, through a *knowledge bred of familiarity* which does not give us a position in objective space” (2002, p. 166)”.

Thus, for Merleau-Ponty habit is a form of ‘knowing how’ rather than ‘knowing that’. It is embodied knowledge; hence it is referred to as knowledge in the hands. The body involved in these habits is to Merleau-Ponty, “the third term”, the alternative to the intellectualists’ and empiricists’ account of the body. It is a body that does not find its place in objective space. The spatiality of the body-in-action is the spatiality of a situation rather than a spatiality of a position (2002, p. 115). Here is an “experiment” you can do for yourself in order to see how this is so: Can you tell which finger you use to press letter ‘S’ on the key board of your computer? Most people, who are somewhat proficient at typing, wouldn’t. But if they have to write a letter and they sit down by their keyboard, the finger will find the letter immediately without the intervention of thought.

How should we talk about the body-in-action? Or, more specifically, how should we denote this “third term”, which is so important in Merleau-Ponty? It is necessary now go on now by drawing upon another distinction found in Merleau-Ponty, and later developed and clarified by Gallagher (cf. 2005); namely that between *body schema* and *body image*. Merleau-Ponty takes up the body schema in his investigation of the spatiality of the body (2002, pp. 112-170). He describes it initially as a “compendium of our bodily experience... supposed to register for me the positional changes of parts of my body for each movement of them [...] a total awareness of my posture in the intersensory world, a ‘form’ in the sense used by Gestalt psychology”

(2002, pp. 113-114). The body schema is thus not an entity lying within the body, but extends into to the world and incorporates the projects that the subject is involved in. In grammatical terms, the body schema should not be thought of as a noun, but rather as an adverb, as a manner or style of being in the world.

According to Gallagher (2005) the body image “consists of a complex set of intentional states and dispositions – perceptions, beliefs, and attitudes – in which the intentional object is one’s own body” (p. 25). That is, the body or parts of the body, is consciously attended to as an object for perception. So, the difference between body schema and image is that with the body image “one is consciously *attending* to body”, whereas with the body schema one is “marginally *aware* of the body” (Gallagher, 2005, p. 27). The body is more of a fully-fledged object in the body image than is the case with the body schema. The body schema, according to Gallagher, does its work “before we know it” (2005, p. 5), and is thus a structure that structures our experiences of the body-in-action. It takes account of the environment in a pragmatic fashion, and can incorporate into its structure objects in the environment, so that the limits between the body and environment become blurred.

The term ‘lived body’ clearly points to the phenomenological ambition of giving an account of the body *as we live it*. In Gallagher’s interpretation, the body schema is a prenoetic structure of embodiment, which to some extent is phenomenologically hidden. The crucial point here is that the body-subject contains the prenoetic operations of the body schema and the pre-reflective awareness of the body as it is lived. The term prenoetic refers to the hidden aspects of our embodiment, or as Gallagher (2005) puts it: “To ask about the prenoetic effects of embodiment is to ask about what happens behind the scenes of awareness, and about how the body anticipates and sets the stage for consciousness” (p. 2).

Thus, following the suggestions that come from embodied theory, the object of my investigation has to be an experience, a *lived experience*, and the body, a *lived body*. The influence of these theories on me has been huge and the research question of my thesis concern with the practical, experiential, lived experience of meditation; indeed meditation has an important philosophical tradition and it is a practice that seem to fit perfectly within the phenomenological frame and within the embodied theory.

1.4 Meditation and Mindfulness Meditation: a definition

Nowadays the term ‘meditation’ is broadly used, but not always his right meaning is well understood (Lutz, Dunne, & Davidson, 2007; Tarozzi, 2002). We first need to specify what meditation is also from the etymological perspective, making then as clear as possible what mindfulness meditation is, without forgetting at the same time that some structured forms of meditative practices were already present at the era of the Ancient Greek (Mortari, 2002).

The word ‘meditation’ comes from *meditare* (medo-mai), that means at the same time ‘to measure’ and ‘to think’, a sort of measuring with the mind, that is ‘to reflect’. The word meditation in its general usage in modern society has a number of different prominent folk meanings (Varela et al., 1991): 1) a state of concentration in which consciousness is focused on only one object; 2) a state of relaxation that is psychologically and medically beneficial; 3) a dissociated state in which trance phenomena can occur; 4) a mystical state in which higher realities or religious objects are experienced. What is called Buddhist mindfulness/awareness practice is intended to be just the opposite of these. Obviously there are different versions of meditation, born in different places, within different cultural frames (Lutz et al. 2007), but for my thesis I have considered only the secular aspect of it, its translation from the eastern society to the Western one – especially Europe and United States – because it seems to be more useful from a pedagogical point of view. In fact I will not consider the religious, spiritual, ritual or mystical aspects of the meditation even though I am totally aware about the important role played by these factors on subjects who learn or teach various forms of meditation.

Beside all the different historical traditions of meditation, the subject of my studies is probably the most common, spread and well-known in our society, and could be considered a soft adaptation of stronger eastern meditation tradition, probably more easy, useful and at the same time more attractive for Europeans and Americans: mindfulness meditation (Kabat-Zinn, 2005; Kabat-Zinn, Lipworth, & Burney, 1985). “Its purpose is to become mindful, to experience what one’s mind is doing as it does it, to be present with one’s mind.” (Varela et al., 1991, p. 23). To describe what mindfulness meditation is we can take a look at what it is not. Usually one notices the tendency of the mind to wander only when one is attempting to accomplish some mental task and the wandering interferes. Or perhaps one realizes that one has just finished an anticipated pleasurable activity without noticing it. “How can this mind become an instrument for knowing itself? How can the flightiness, the nonpresence of mind be worked with? Traditionally, text talk about two stages of practice: calming or taming the mind (Sanskrit: shamatha) and the development of insight (Sanskrit: vipashyana). Shamatha, when used as a separate practice, is in fact a concentration technique for learning to hold (“tether” is the traditional term) the mind to a single object. [...] The purpose of calming the mind in Buddhism is not to become absorbed but to render the mind able to be present with itself long enough to gain insight into its own nature and functioning.” (Varela et al., 1991, p. 24).

When Varela and colleagues first spoke about ‘embodied cognition’ they were referring to the union of cognitive sciences and phenomenology for the theoretical part, and mindfulness meditation for the practical one. We can properly say that the origins of the ‘embodied theory’ is strictly connected to meditation and, specifically, to mindfulness meditation. Indeed, for the embodied approach, the practice and the experiential side of the life is important as well as the theoretical one. This assumption

is so fundamental that only considering it carefully we can understand the critic that Varela addressed to Husserl, Heidegger and Merleau-Ponty when he wrote that they treated deeply and acutely the theme of the experience and the body but they were lacking an important point: the practice. Indeed in *The Embodied Mind* (1991, p. 19) we can read that

“Thus although Husserl’s turn toward a phenomenological analysis of experience seemed radical, it was, in fact, quite within the mainstream of Western philosophy. Indeed, this criticism would hold even for Heidegger’s existential phenomenology, as well as for Merleau-Ponty’s phenomenology of lived experience. Both stressed the pragmatic, embodied context of human experience, but in a purely theoretical way. [...] But precisely by being a theoretical activity after the fact, it could not recapture the richness of experience; it could be only a discourse about that experience. Merleau-Ponty admitted this in his own way by saying that his task was infinite”.

At that time Varela was quite critical to some aspect of the phenomenological tradition¹ but still intrigued in the possibility to close the gap between cognitive sciences and the subjective experience. He was convinced that the dialog between cognitive sciences and phenomenology was the good theoretical road for that, and the mindfulness meditation was just the right practical *trait d’union* among them.

Thus there is a very strict link between meditation and consciousness from the phenomenological point of view (Fasching, 2008) but there is also a deeper one

¹ Evan Thompson has recently corrected this initial position of Varela affirming that “*The Embodied Mind*” briefly discussed and criticized Husserlian phenomenology. Although I still stand by some of those critical points, I also believe our treatment was too hasty. At the time we lacked sufficient knowledge of the depth and breadth of Husserl’s writings. We were also influenced by Hubert Dreyfus’s interpretation of Husserl as a cognitivist and proto-computationalist, an interpretation I no longer accept and that Varela too disavowed in his subsequent work on naturalizing phenomenology” (2007, p. 444).

between meditation, education and phenomenology (Cavana, 2000; Demetrio, 2000; Tarozzi 2002); these links have to be investigated empirically and pedagogically and constitutes the core of my thesis.

2 The Embodied Education

As I said, my aim is to examine how bodily experience – and in particular meditative experience – shapes self-knowledge and the first-person perspective; the aim is to introduce the latest developments in these areas to the educational debate, given that they are already well spread in other disciplines, from anthropology to philosophy, from psychology to neuroscience but not so much in pedagogy (Francesconi 2009a; 2009b).

This hybrid and embodied vision of cognition is nowadays current in cognitive science and neuroscience – although initially it had been set aside or not taken into consideration. It seems to be, from my point of view, highly relevant to education also considering the fact that particular attention to the body has always been very present in educational sciences, particularly within phenomenological pedagogy (Dallari, 2005, pp. 15-91); the effort to create an innovative approach which mixes neurocognitive sciences and education, though not yet been set programmatically in dialogue except in isolated cases, is quickly growing and offers interesting perspectives for the theoretical discussion and empirical research that require more attention from educational scholars and that have a position within the actual debate (Fischer, 2009; Fischer, Daniel, Immordino-Yang, Stern, Battro, & Koizumi, 2007). It is from this theoretical perspective that comes my proposal to think of an *Embodied Education* as a result arising from the intersection of phenomenology and embodied theory.

My initial interest to a pedagogical approach attentive to the cognitive sciences is mainly due to the attendance of the work of Mortari (2002; 2003) and Dallari (2000, 2005). In particular, in the text *Aver cura della vita della mente*, a few years ago I found a fascinating combination of phenomenological pedagogy and cognitive science

and some exciting definitions of concepts such as ‘thought’, ‘cognition’, ‘mind’, ‘consciousness’, ‘self’, definitions which I have never substantially dropped and which I now find very useful, during my PhD course, to develop an epistemological and methodological reflection within the current debate on these issues.

The educational sciences and neurocognitive sciences are gaining more ground in common (Fischer et al., 2007), not only to the classical themes of learning, memory and attention but also to the theme of consciousness and self, and the bodily dimension of the identity. I want to suggest the idea of *Embodied Education* declining it in two ways: a) epistemological, b) empirical:

a) As we have seen the epistemological roots of my proposal are grounded in the embodied theory that is, at its time, a fusion of phenomenology, neurocognitive sciences and complexity theory. This is the approach that I refer to, considered from a pedagogical perspective.

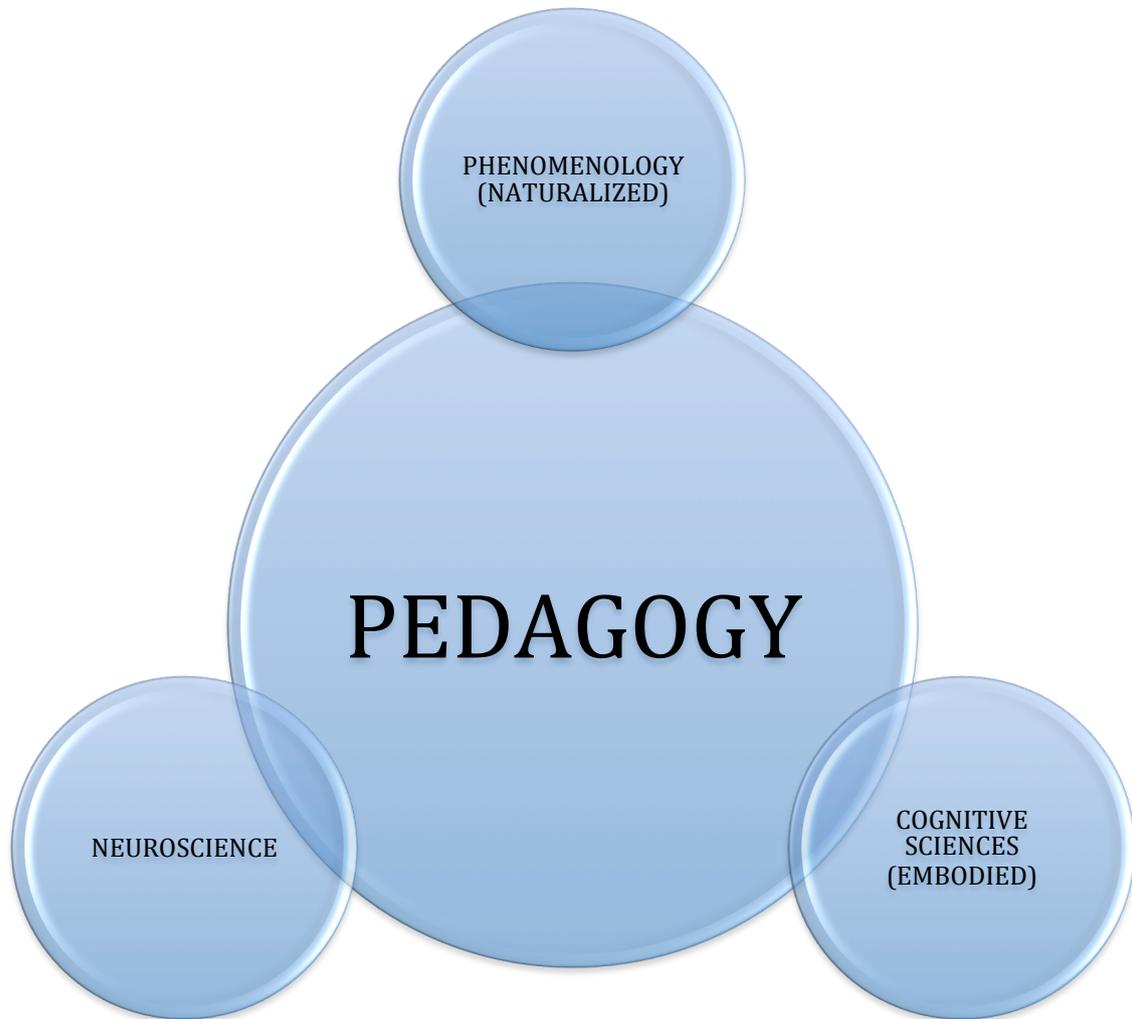


Figure 1 Epistemological structure of the Embodied Education

b) The empirical, as we will see more over in the text, as to do with the fundamental role of the experience, which surpasses, from a pedagogical point of view, the mere role of the body or of the mind taken separately.

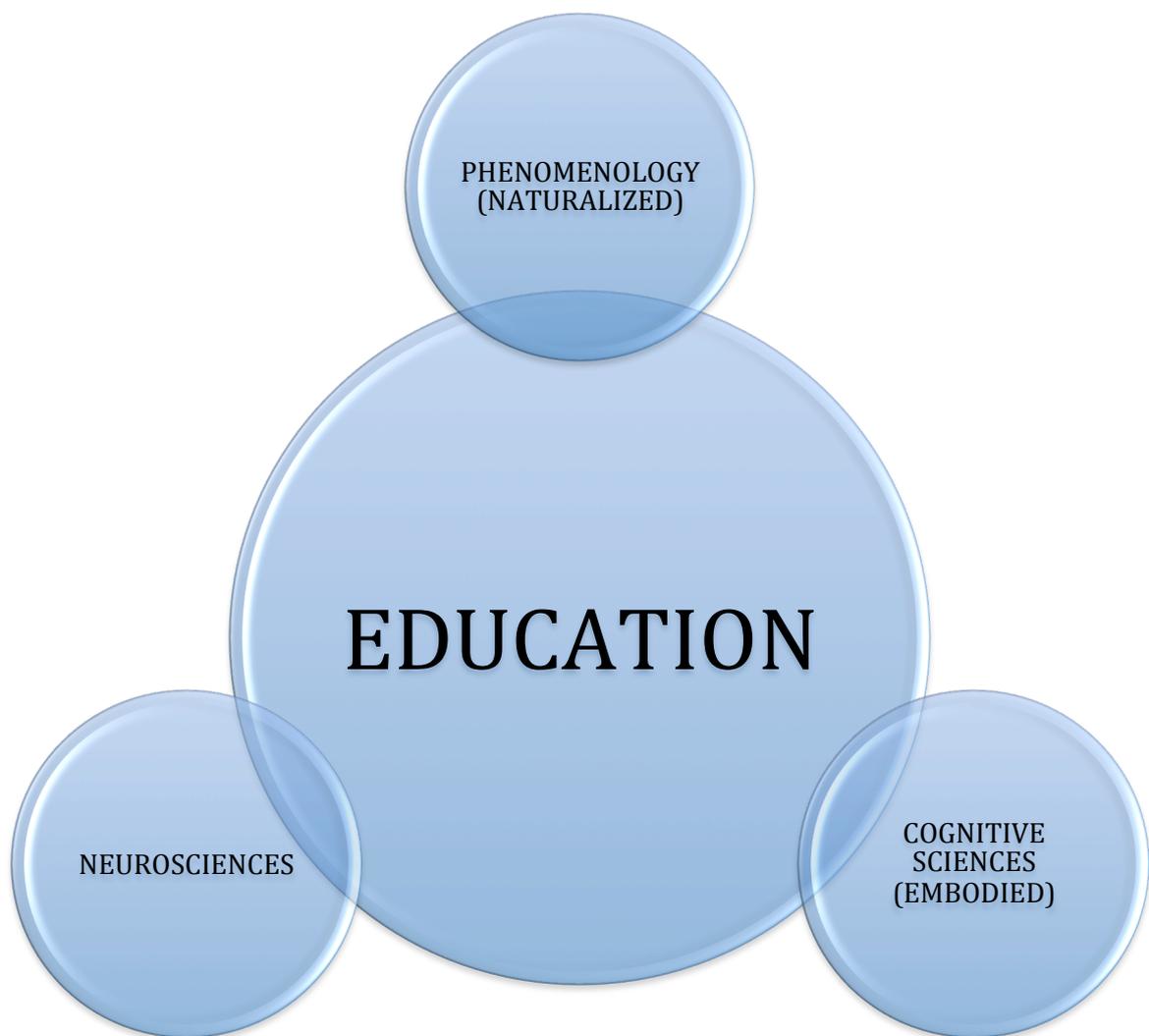


Figure 2 Empirical structure of the Embodied Education

2.1 Neurocognitive aspects of mindfulness meditation

Results within the neurocognitive science of meditation are frequently discussed with respect to neuroplasticity, as several findings suggest that extended meditation training may lead to functional as well as structural changes of the brain (e.g. Davidson, Kabat-Zinn, Schumacher, Rosenkranz, Muller, Santorelli, Urbanowski, Harrington, Bonus, & Sheridan, 2003; Lazar, Kerr, Wasserman, Gray, Greve, Treadway, McGarvey, Quinn, Dusek, Benson, Rauch, Moore, & Fischl, 2005; Lutz, Greischar, Rawlings, Ricard, & Davidson, 2004; Pagnoni & Cekic, 2007). We will take a look at the most interesting results from a pedagogical point of view – and neuroplasticity definitely is an interesting topic for educators – with regard to both the structural (neurological) and functional (cognitive) aspects of meditation practice.

2.1.1 Neurological and physiological effects of meditation

Empirical research on the effects of meditation began in the 50's and has led to various studies. However, neuroscientific studies began in the 90's. There has been enormous growth in this sector in recent years and a proliferation of institutes, organizations, centers and research programs dedicated exclusively to the study of the effects of short or long meditative practices on the central nervous system and on the brain specifically. Recently, other studies, from biology to medicine have also investigated the effects of meditation on the immune system (Kabat-Zinn 2005; Kabat-Zinn et al., 1985).

It is not necessary here to propose a complete review of the dedicated literature; instead it seems to be more useful to explore some neurological and physiological

consequences of meditation practice which are or could be of some interest from a pedagogical point of view. One of the most significant aspects of neuroscientific research on meditation in terms of education lies in what is called ‘neuroplasticity’, the ability of the brain to change its functions and/or its structure as a result of internal and external stimuli, that is experience. The discovery that the brain is able to modify itself through ordinary and repeated experiences or lead experiences (as training and learning) is rather modern; the previous belief amongst scientists was that the brain does not change after the critical period of infancy. Nowadays the huge amount of investigation on that is revealing something completely different. The brain is plastic, malleable, experience-dependent (Merzenich, 1987, cited in Gallese, 2006). The idea that the development and the modulation of the brain structure is experience-based is quite revolutionary and new and it is certainly well supported by numerous data. For example, neonatal rodents exposed to varying levels of maternal licking and grooming develop very different phenotypes and genotypes; the brains of animals are critically affected by this differential rearing. Indeed, the gene that codes the glucocorticoid receptor is actually changed by such experience (Lutz et al., 2007). In humans, the brain of an expert chess player, taxi driver or musician is functionally and structurally different from that of a non-expert in each profession. London taxi cab drivers have larger hippocampi than matched controls and the amount of time the individual worked as a cab driver predicted the size of the posterior hippocampus (Maguire, Gadian, Johnsrude, Good, Ashburner, Frackowiak, & Frith, 2000). Further work by this group suggests that these differences in hippocampal size are the results of experience and training as a cab driver and not a consequence of pre-existing differences in hippocampal structure (Maguire, Spiers, Good, Hartley, Frackowiak, & Burgess, 2003).

Speaking about meditation, a recent study shows how the brain's structure changes according to meditation training (Lazard et al., 2005). In this study, cortical thickness was assessed using magnetic resonance imaging comparing groups with different amounts of meditative experience and different ages; the authors found that the cortical areas of the brain that are linked to attention, interoception and sensory processing (including the prefrontal cortex and right anterior insula) were thicker in subjects who had done 40 minutes of Insight Meditation per day for an average of nine years than with matched controls. Cortical thickness could be due to greater arborization per neuron, increased glial volume, or increased regional vasculature, all of which are important for neural function. These results seem to suggest that learning meditation practices affect body-mind wellness, consciousness development and social skills development as well as involving a positive functional and structural change in the brain. They further suggest that meditation may have an impact on age-related declines in cortical structure, and this result is strictly related with what is called today 'Life-Long Learning'.

The effects of meditation on the grey matter are confirmed by Luders and colleagues (Luders, Toga, Lepore, & Gaser, 2009) and by Vestergaard-Poulsen and colleagues (Vestergaard-Poulsen, van Beek, Skewes, Bjarkam, Stubberup, Bertelsen, & Roepstorff, 2009). In these two studies some other brain areas are been investigated but the final focus was still on the grey matter. In the first one, using high-resolution MRI data of 44 subjects, experts and control groups, authors set out to examine the underlying anatomical correlates of long-term meditation. They detected significantly larger grey matter volumes in meditators in the right orbito-frontal cortex. In addition, meditators showed significantly larger volumes of the right hippocampus. Both orbito-frontal and hippocampal regions have been implied into emotional regulation and

response control. Thus, larger volumes in these regions might account for meditators' singular abilities and habits to cultivate positive emotions, retain emotional stability, and engage in mindful behavior. They further suggest that these regional alterations in brain structures constitute part of the underlying neurological correlate of long-term meditation independent of a specific style and practice.

In the study conducted by Vestergaard-Poulsen and colleagues (Vestergaard-Poulsen et al., 2009), authors report evidence of structural differences in the lower brainstem of participants engaged in the long-term practice of meditation. Using magnetic resonance imaging, they observed higher gray matter density in lower brain stem regions of experienced meditators compared with age-matched nonmeditators. The findings show that long-term practitioners of meditation have structural differences in brainstem regions concerned with cardiorespiratory control. According to the authors, this could account for some of the cardiorespiratory parasympathetic effects and traits, as well as the cognitive, emotional, and immunoreactive impact reported in several studies of different meditation practices. We have to consider that the brainstem is very different from the cortical areas, both in structure and in functions. Though small, this is an extremely important part of the brain as the nerve connections of the motor and sensory systems from the main part of the brain to the rest of the body pass through the brain stem. This includes the corticospinal tract (motor), the posterior column-medial lemniscus pathway (fine touch, vibration sensation and proprioception) and the spinothalamic tract (pain, temperature, itch and crude touch). As already mentioned, the brain stem also plays an important role in the regulation of cardiac and respiratory function. It also regulates the central nervous system, and is pivotal in maintaining consciousness and regulating the sleep cycle.

Speaking about the electro-physiological functioning of the brain and not about cytoarchitectonics, we have to remember that the first studies on meditation were carried out in the 80's on the cerebral waves during meditative states; this was the first approach to the question, also because at that time, only the EEG (Electro-Encephalogram) was available. Since those pioneering studies, much more has been done and I want to mention shortly a study and its results which have recently been discovered. As reported by Fell and colleagues (Fell, Axmacher, & Haupt, 2010), some electrophysiological alterations can be observed on the beginner/student level, which are closely related to non-meditative processes. Others seem to correspond to an advanced/expert level, and seem to be unique for meditation-related states of consciousness. Meditation is one possibility to specialize in brain/mind functions using the brain's immanent neural plasticity. This plasticity is probably recruited by certain EEG patterns observed during/or as a result of meditation, for instance, synchronized gamma oscillations. While meditation has formerly been understood to comprise mainly passive relaxation states, recent EEG findings suggest that meditation is associated with active states which involve cognitive restructuring and learning. Expert meditators showed a rise in gamma waves which lead to the hypothesis of the brain as maximally sensitive consuming less power (Fell et al., 2010). This suggests one of the main effects that meditation could have: the relaxation of the brain-body unit is coupled with a better functioning of the high-order cognitive functions, that is consciousness and awareness.

According to Lutz, 'the meditative traditions provide a compelling example of strategies and techniques that have evolved over time to enhance and optimize human potential and well-being. The neuroscientific study of these traditions is still in its infancy but early findings promise both to reveal the mechanisms by which such

training may exert its effects and to underscore the plasticity of the brain circuits that underlie complex mental functions (Lutz et al., 2007).

2.1.2 Cognitive and functional effects of meditation

An alternative perspective on meditation practice concerns cognitive, emotional and, in general, functional changes resulting from short or extensive meditation practice, where meditation is often conceptualized in terms of mental or cognitive training (e.g. Cahn & Polich, 2006; Carter, Presti, Callistemon, Ungerer, Liu, & Pettigrew, 2005; Lutz, Slagter, Dunne, & Davidson, 2008).

The study of the mind has been the object of interest for both Eastern culture and Western philosophy and psychology. These two approaches provide different perspectives that contribute to a broader understanding of the processes and effects of meditation practice. In an attempt to align western psychological and Buddhist thinking on this topic, Wallace (2007) provides a framework that facilitates the integration of such different perspectives. Drawing from Buddhist sources as well as psychological theory and evidence they propose a four-component model, outlining areas for development that contribute to overall psychological well-being. According to their mental balance model the components *conation* (motivation, intention), *attention*, *cognition* and *affect/emotion* need to be developed and balanced to achieve profound well-being. In particular, though not exclusively, the components attention and cognition bear a close relationship to mindfulness (see Moore, & Malinowski, 2009), which has been conceptualised in terms of *self-regulation of attention and orientation towards one's experiences* (Bishop, Lau, Shapiro, Carlson, Anderson, Carmody, Segal,

Abbey, Speca, Velting, Devins, 2004). Also Kabat-Zinn's operational definition of mindfulness as "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2005, p. 145) acknowledges these two aspects. Thus, mindfulness meditation encompasses various aspects of attention as for instance the ability to focus and sustain one's attention and a reduced proneness to distraction. Cahn & Polich's definition of meditation as "practices that self-regulate the body and mind, thereby affecting mental events by engaging a specific attentional set" (Cahn & Polich, 2006, p. 180), also indicates that *training of attentional functions* is an essential aspect of any form of meditation practice. In a similar way traditional Buddhist texts describe the practice of bare attention, the attending "to the bare facts of perception without reacting to them by deed, speech or mental comment", as a corner stone of mindfulness (Wallace, 2007, p. 3). To cultivate mindful awareness, attention needs to be combined with a non-judgmental orientation towards an openness for the flow of one's experiences.

Thus, as we have seen right now, speaking about mindfulness meditation implicates speaking about different cognitive functions, as attention, memory, self-regulation, self-perception, emotional balance, metacognitive skills, well-being etc. But depending on different tradition, for instance, we could have a different form of attention training: one refers to *open attention* (OA) and one for the *focused attention* (FA). These styles are found with some variation in several meditation traditions, including Zen, Vipassana and Tibetan Buddhism (Austin, 1999; 2009). Both styles are also implied in secular interventions that draw on Buddhist practices, such as mindfulness based stress reduction (Kabat-Zinn, 1985). The first style, FA meditation, entails voluntary focusing attention on a chosen object in a sustained fashion. The

second style, OM meditation, involves nonreactively monitoring the content of experience from moment to moment, primarily as a means to recognize the nature of emotional and cognitive patterns. Here below I have reported two short detailed explanations of what they exactly are (Lutz et al., 2008).

Box 1. FA meditation

A widespread style of Buddhist practice involves sustaining selective attention moment by moment on a chosen object, such as a subset of localized sensations caused by respiration. To sustain this focus, the meditator must also constantly monitor the quality of attention. At first, the attention wanders away from the chosen object, and the typical instruction is to recognize the wandering and then restore attention to the chosen object. For example, while intending to focus on localized sensations around the nostrils caused by breathing, one might notice that the focus has shifted to the pain in one's knee. One then 'releases' this distraction, and returns to the intended object. Thus, while cultivating the acuity and stability of sustained attention on a chosen object, this practice also develops three skills regulative of attention: the first is the monitoring faculty that remains vigilant to distractions without destabilizing the intended focus. The next skill is the ability to disengage from a distracting object without further involvement. The last involves the ability to redirect focus promptly to the chosen object.

Progress in this form of meditation is measured, in part, by the degree of effort required to sustain the intended focus. The novice contends with more distractions, and the three regulative skills are frequently exercised. As one advances, the three regulative skills can be developed to the point that, for example, advanced practitioners have an especially acute ability to notice when the mind has wandered. Eventually, FA induces a trait change, whereby the attention rests more readily and stably on the chosen focus. At the most advanced levels, the regulative skills are invoked less and less frequently, and the ability to sustain focus thus becomes progressively 'effortless.'

In advanced practitioners, FA practices create a sense of physical lightness or vigor, and the need for sleep is said to be reduced. Advanced levels of concentration are also thought to correlate with a significant decrease in emotional reactivity. FA practices typically involve a relatively narrow field of focus, and as a result, the ability to identify stimuli outside that field of focus might be reduced.

Box 2. OM meditation

Although varied, OM practices share several core features, including in particular the initial use of FA training to calm the mind and reduce distractions. As FA advances, the well developed monitoring skill becomes the main point of transition into OM practice. One aims to remain only in the monitoring state, attentive moment by moment to anything that occurs in experience without focusing on any explicit object. To reach this state, the practitioner gradually reduces the focus on an explicit object in FA, and the monitoring faculty is correspondingly emphasized. Usually, there is also an increasing emphasis on cultivating a ‘reflexive’ awareness that grants one greater access to the rich features of each experience, such as the degree of phenomenal intensity, the emotional tone and the active cognitive schema.

Although the enhancement of the monitoring awareness continues until no explicit focus is maintained, the monitoring itself does not create any new explicit focus. Thus, unlike FA, OM involves no strong distinction between selection and deselection. For example, the FA monitoring faculty detects the emotional tone of a state as a background feature of the primary focus, but in OM the emotional tone is detected without it, or any other object, becoming an explicit or primary focus. It is as if emotional tone, the quality of attention, and other such phenomenal features remain in the background, even though there is no contrasting cognitive foreground. In this way, the ‘effortful’ selection or ‘grasping’ of an object as primary focus is gradually replaced by the ‘effortless’ sustaining of an awareness without explicit selection.

This distinction between the ‘effortful’ and the ‘effortless’ points to the contrast between skills employed during the state and traits developed as practice progresses. For example, initially the practitioner frequently ‘grasps’ objects in a way that requires the skill to disengage that focus deliberately; however, eventually a trait emerges such that one can sustain the ‘non-grasping’ state, which has no explicit focus.

A central aim of OM practice is to gain a clear reflexive awareness of the usually implicit features of one’s mental life. It is said that awareness of such features enables one more readily to transform cognitive and emotional habits. In particular, OM practice allegedly leads one to a more acute, but less emotionally reactive, awareness of the autobiographical sense of identity that projects back into the past and forward into the future. Finally, heightened sensitivity to body and environment occurs with a decrease in the forms of reactivity that create mental distress.

Referring to the important theme of mind aging and the strategies for facing it – theme that has a close connection with the *Life-Long Learning* theory and Adult Education – I want to briefly report a study about the role of meditation practice on age-related effect of meditation training. In this study (van Leeuwen, Müller, & Melloni, 2009) the authors explore whether mental training in the form of meditation can help to overcome age-related attentional decline. They compared performance on the attentional blink task between three populations: a group of long-term meditation practitioners within an older population, a control group of age-matched participants and a control group of young participants. Members of both control groups had never practiced meditation. The results show that long-term meditation practice leads to a reduction of the attentional blink. Meditation practitioners taken from an older population showed a reduction in blink as compared to a control group taken from a younger population, whereas, the control group age-matched to the meditators' group revealed a blink that was comparatively larger and broader. These results support the hypothesis that meditation practice can: (i) alter the efficiency with which attentional resources are distributed and (ii) help to overcome age-related attentional deficits in the temporal domain.

Let us see now how we can treat meditation from a pedagogical perspective.

2.2 Educational aspects of meditation

2.2.1 Learning by doing: meditation as experiential education

As I said, the embodied approach is already well developed and broadly used in a number of different disciplines: very common within the cognitive neuroscience, psychology and philosophy of the mind, useful for the informatics and Artificial Intelligence also, well considered in sociology and anthropology as well (Marchand 2010). In pedagogy and educational sciences, instead, it is not well developed yet. One could attribute this lack to the historical negative tradition of pedagogy that consists in staying far from the ‘hot’ scientific debate of every age, moving to safer lands and conserving acquired positions. In fact, when I first started to search sources in literature about the relationship between education and the embodied approach, it was quite a struggle to find something interesting.

But to me this lack of connection was very surprising for at least three reasons: a) there is a huge international phenomenological movement of pedagogy which is theoretically just a step away from the embodied theory and the new direction that phenomenology took in the last years. Thus that means that sometimes a step can be harder than the New York marathon; b) the great interest that pedagogy has always had, since the time of Plato, to the bodily and environmentally dimensions of learning; c) the great tradition of special education, which has been developed by outstanding scholars as Montessori and Vygotskji (Pesci, 2005), who thought that a connection between biology and education was necessary but who also thought that an experiential dimension of the educational practices was the unavoidable direction of modern pedagogy.

I have to say that when I began my work I had some doubts about the utility of the embodied perspective to pedagogy, and I asked myself what was new in the embodied approach that had not been taken into consideration in pedagogy yet. Indeed pedagogy and phenomenological pedagogy has very often well considered the important role of the body, the environment and the lived experiences in its practice and theory (Dallari, 2000; Farnè 2008; Mortari 2002; Tarozzi, 2002). However we have to admit that the phenomenological pedagogy movement has never taken suggestions from cognitive sciences seriously. But now this new embodied approach, from neuro-cognitive sciences, is giving new luster to these issues. I am convinced that pedagogy has to find its place within what was called ‘mind revolution’ (Gardner, 1987) and also ‘neuro-revolution’.

I have already discussed the neurocognitive effects of meditation; let us have a closer look now to what I think education can say about meditation. Here the question is to consider meditation as a form of *learning by doing*, that is *experiential learning*. The word experience (*ex perior*: to try, to understand by doing something repeatedly) has always been very important in educational sciences and now, as we have seen, has become of a certain interest within cognitive sciences as well. We have to keep in mind the subtitle of the book ‘The Embodied Mind’ which is ‘Cognitive Sciences and the Human Experience’; indeed, the big step taken by the initial proponents of the embodied approach was to put in the center of the discussion both the role of the human experience and the subject who goes through that experience, that is the subjective, qualitative, phenomenological dimension of the experience itself.

In phenomenology, experience is not conceived as a modellization of the external world, like a cast of the objective reality. Knowledge is not the mirror of nature or the manipulation of symbols (Thompson, 2007). What it is interesting for pedagogy

is rather that the form of experiencing the reality as a subjective dimension which has a meaning – or even more than one – for the subject and has also a shared and intersubjective meaning for different subjects. The experiential education that I want to present is grounded on Merleau-Ponty's work.

What does Merleau-Ponty have to say about learning? Following Standals (2009), we can say the follow. First of all we have to stretch that he taught various courses in developmental psychology and pedagogy at the university. Indications of Merleau-Ponty's relevance to learning can be found in secondary sources: Jespersen (2003) draws on Merleau-Ponty in his critique of both situated learning and Bandura's social-cognitive theory for not properly understanding the role of the body in modelling (i.e. learning through observation and imitation) in sports. This critique was later given a positive reconstruction when Jespersen (2003) considered Merleau-Ponty's notion of the habitual body "as an original structure of learning in every instance, i.e. a kind of corporeal grounding in the most personal sense of growth and development" (p. 210).

A second resource is found in the Skill model of Dreyfus & Dreyfus (cf. Dreyfus, 2002), which is a 5-step model for skill acquisition from novice to expert². This model is based on Merleau-Ponty's phenomenology, in particular his notions of intentional arc and maximum grip (Dreyfus, 2002). In the model, a development is described where the learner moves from being dependent on explicit rules given by a teacher/instructor to finally on the expert level being able to act with an "immediate

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The model has in one text been developed to include a sixth and seventh level: mastery and practical wisdom (Dreyfus 2002, p. 373).

intuitive situational response” (Dreyfus, 2002: 372). The Skill model is a critique of a representationalist’s account of learning. That is, according to the Skill model, the expert is capable of action without the need for mental representations: “What one has learned appears in the way the world shows up; it is not represented in the mind and added on to present experience. That is, according to Merleau-Ponty, what the learner acquires through experience is not *represented* in the mind at all but is *presented* to the learner as a more and more finely discriminated situation, which then solicits a more and more refined response “ (Dreyfus 2002, p. 373.). I will not go deeply into Dreyfus’ model; suffice it to say that Dreyfus (2002) gives us a clear indication that learning, although perhaps not an explicit concern of Merleau- Ponty, is a theme that can be read out of his work.

Merleau-Ponty’s first work, *The structure of behaviour* (Merleau-Ponty, 1963), contains a critique of behaviourism, and as such is the place where Merleau-Ponty most explicitly deals with learning. However, apart from this critique of behaviourism, one could say that learning is a theme implicitly occupying Merleau-Ponty to some degree in *Phenomenology of perception*. The essential function of perception, for Merleau-Ponty, “is to lay the foundations of, or inaugurate, knowledge” (2002, p. 19). Could we not say that learning in one sense is to inaugurate knowledge? In addition, throughout his work, Merleau-Ponty carves out a third position between empiricism and intellectualism. He thus states: “Empiricism cannot see that we need to know what we are looking for, otherwise we could not be looking for it, and intellectualism fails to see that we need to be ignorant of what we are looking for, or equally again, we should not be searching. They are in agreement that neither can grasp consciousness *in the act of learning*” (2002, p. 33).

In *The structure of behavior*, Merleau-Ponty engages at length with learning. At the time of writing (the end of the 1930's), contemporary learning theory in psychology was more or less synonymous with behaviourism, a theory that tried to explain the acquisition of new behaviour by linking an external stimulus to the release of a given response. Between stimulus and response there exists only external and causal relations:

“Learning and development... only transfer to certain stimuli the power of releasing certain movements, the motor conditions of which are considered as given in advance. The development of behavior consists only in different associations of pre-existing elements [...]. The conditioned reflex theory presents stimulations and responses which succeed each other in an organism like a series of events external to each other and between which no relations can be established other than those of immediate temporal contiguity (1963, pp. 94-95).

Merleau-Ponty notes a distinction, which is not taken into account by behaviourism, namely that between (i) the physical event that the stimulus in itself is, and (ii) the situation taken as a whole for the organism, in which the physical event is just one part. For behaviourism it is only (i) that can explain behaviour: It is the external, physical event that causally leads to the release of behaviour. For the behaviourists, (ii) would merely be an explanation attributed to the situation by a human observer. For Merleau-Ponty on the other hand, the situation taken as a whole is not something merely attributed to the compound of stimuli, because these stimuli are integrated into structural processes that play a regulating role: “they establish *a relation of meaning* between situation and response [...] It is to the extent that relations of this kind emerge and become efficacious by themselves that the progress of behavior is explicable” (1963, p. 103).

What is brought forth here is a critique of the atomism that lies at the heart of behaviourism, where any situation could be – indeed had to be – decomposed into its constitutive parts in order to find the stimulus/stimuli that causally lead to the release of behaviour. Against atomism Merleau-Ponty evokes the notions of “form” or “structure” that he takes from the Gestalt psychologists³. As opposed to atomism, Gestalt psychology holds that the whole of a system is not equivalent to the sum of its isolated parts, but are rather “defined as total processes which may be indiscernible from each other while their ‘parts’, compared to each other, differ in absolute size... the systems are defined as transposable wholes” (1963, p. 47). The notion of gestalt, or structure, serves us, according to Merleau-Ponty, better in understanding how a relation of meaning is established not between the stimulus and the response, but between the total situation and the response.

A second critical point is that behaviourism places the stimuli and the response after one another in a linear, temporal process. The stimulus and the response are two externally linked moments following each other in time. Merleau-Ponty questions this linear relation: “Situation and reaction are linked internally by their common participation in a structure in which the mode of activity proper to the organism is expressed. Hence they cannot be placed one after the other as cause and effect” (1963, p. 130). Behaviour, for Merleau-Ponty, is not a matter of external causation between two isolated events, but rather an internal participation in the structure of a situation.

3

It is interesting to note that the French word *structure* is usually used to translate *Gestalt* from German to French (Priest, 1998). This gives a clear meaning of what kind of structure Merleau-Ponty investigates in *The structure of behavior*.

What Merleau-Ponty questions is the conceptualization of time employed by behaviourism:

[Behavior] does not unfold in objective time and space like a series of physical events; each moment does not occupy one and only one point in time; rather, at the decisive moment of learning, a “now” stands out from the series of “nows”, acquires a particular value and summarizes the groupings which have preceded it as it engages and anticipates the future of the behavior (1963, p. 125).

The concept of time in behaviourism is an objective time where each second disinterestingly overtakes the previous one. Merleau-Ponty, on the other hand, calls attention to lived time, in which the *decisive now* summons the past in a projection towards the future. Thus, Merleau-Ponty takes behaviour and learning out of the order of strict objectivity and sees them as a projection outside the organism of a possibility which is internal to it. The world, in as much as it harbors living beings, ceases to be a material plenum consisting of juxtaposed parts; it opens up a place where behavior appears (1963, p. 125).

Through his critique of behaviourism, Merleau-Ponty shows how organisms – both animals and human beings – react to the total constellations of a situation, rather than to isolated physical or chemical stimuli. If behaviourism was successful in isolating certain stimuli that produced given responses, this was only possible in the conditions found in the laboratory setting. The conditions of life are different, because here the organism displays “a sort of prospective activity” (2002, p. 4), not reckoned with in laboratory conditions. This means that the organism, e.g. the human body, does not wait for external forces to set it in motion, but rather orients itself towards the meaning of the current situation. As we will see, the idea to use qualitative methods to investigate the ‘real’ embodied-embedded practice of meditation fits well with the effort

to capture the subjective perspective and the meaning attribution to the actual experience, as indicated by Merleau-Ponty.

The critique of behaviouristic conception of learning has so far been a negative one. But Merleau-Ponty also points to a positive description of learning. Contra behaviourism Merleau-Ponty says that “to learn never consists in being capable of repeating the same gesture” (1963, p. 96), for instance pressing levers to get food or finding a way through a maze, as the animals in the behaviourists’ experiments had to do. Rather, to learn consists of “providing an adapted response to the situation with different means” (ibid.). To learn is not to be able to repeat the same gesture over and over again. Rather there must be something involved, which is more flexible than automatic responses: “There must be a *principle in the organism* which ensures that the learning experience will have a general relevance” (1963, p. 99). Later, Merleau-Ponty would say that “my body is that meaningful core which behaves like a *general function*, and which nevertheless exists, and is susceptible to disease” (2002, p. 170). One way of understanding what this general principle or function is, involves attending to Merleau-Ponty’s notions of body and habit, which I discussed before.

So, the act of learning is an act that happens in to the *lived experience*, an experience where the body is central, even when it is not in motion as in meditation. The issue here is that it is not necessary to always create new experiences where we can stand in front of new and amazing objects but it is rather preferable to recognize and appreciate the surprise inherent in everyday objects, allowing for usual surprises (Mortari, 2002, p. 228). It is a work on oneself that needs to be done, a work of crafting its sensitivity and its ability to be surprised. In this sense we can say that experiential education through meditation aims to educate the perceptual sensitivity – and the description/interpretation of the experience by an embodied self – as a proper and

refined way of feeling the world; this is exactly the opposite of the bulimic attitude toward every new objects to replace each other lacking the inner value of the self-world relationship. Phenomenology and meditation are methods for learning to live in the *Lebenswelt*, in the lived world, through a sort of passive behavior that allow the things to show their own nature, going back to the things themselves.

Even though there is no literature about how and why meditation can be considered as a practice of experiential learning, meditation is very often declined in a pedagogical manner, in schools as well as in business companies. From my point of view mindfulness meditation can be considered as experiential learning because it has the basic characteristics of every experiential education experience and setting (Beard & Wilson, 2006):

- It is done out of the formal educational system and out of its settings, like a classroom (even though it is getting more and more in to it in the past few years);
- It is a practical/physical activity;
- There is a notable role of reflexive practice in experience;
- Its aims are deeply pedagogical: self knowledge; self development; well being; social skills; ethical skills.

Getting closer to how meditation can be considered a form of ‘learning by doing’, we can take a look at the didactical structure of a meditation session or lesson. Considering some suggestions by the literature (Varela et al., 1991) and what I collected with my studies, we can say that typically mindfulness/awareness is trained by means of formal periods of sitting meditation, where the experience itself consists of nothing else than sitting and breathing. The purpose of such a period is to simplify the situation to

the bare minimum. The body is put into an upright posture and held still. Some simple object, often the breath, is used as the focus of alert attention. Each time the meditator realizes that his mind is wandering unmindfully, he is to acknowledge nonjudgmentally that wandering (there are various instructions as to how this is to be done) and bring the mind back to its object. Breathing is one of the most simple, basic, ever-present bodily activities but it does not seem to be the easiest (we will see that much better in the results' section). Yet beginning meditators are generally astonished at how difficult it is to be mindful of an even so uncomplex object. Meditators discover that mind and body are not coordinated. The body is sitting and usually not perfectly still, but the mind is seized constantly by thoughts, feelings, inner conversations, daydreams, fantasies, sleepiness, opinions, theories, judgments about thoughts and feelings, judgments about judgments – a never-ending torrent of disconnected mental events that the meditators do not even realize are occurring except at those brief instants when they remember what they are doing. Even when they attempt to return to their object of mindfulness, the breath, they may discover that they are only thinking about the breath rather than being mindful of the breath. As we will see, meditation is a practice that, differently from other physical activities, deeply involve the phenomenological mind, the subjective enquire about what is going on during the meditative session. The request to stay still and focus only on the breath is not only quite unusual, especially for Western people, but also completely surprising both in a positive and negative way.

The best proof of meditation, especially mindfulness meditation, as education is just that through a bodily activity the mind gets definitely surprised, awakened, questioned (Mortari 2002); thrown in an unusual condition of uncertainty, which could be a stall but instead it pedagogically and cognitively is a resource (Dallari, 2002; 2006). The subject has to face a situation where a falsely simple physical experience

turns into a truly complex mental one. With the risk for the subject to lose control on it. In this case the back-and-forth dialectic between the bodily and mental dimensions is necessary to the subject to try not to get control over the situation but to find personal accommodation on it and, then, an interpretation of it. To become mindful means exactly that: to know what is going on to me at a specific moment, letting it go on without trying to get mental control of it, letting it happen and staying in the flow of consciousness without judgments. The interesting question here is to see how the process of becoming mindful happens through the meditative learning process.

What do we learn when we study to meditate? This is a question to which I tried to answer with my study but for now let's see the model of mindful learning offered by Langer. The Langer's study of mindful learning offers us a view of "mindfulness" that has elements that appear on the surface both similar and distinct from the thousands of years of the practice of mindful awareness. In Langer's own words (1989; 1997, p. 111) "When we are mindful, we implicitly or explicitly 1) view a situation from several perspectives, 2) see information presented in the situation as novel, 3) attend to the context in which we are perceiving the information, and eventually 4) create new categories through which this information may be understood." For Langer these features of multiple perspectives, novelty, context and new categories are the essence of mindful learning; we will see that some categories that I found in my study converge with this model and that some others differ from it.

Baer and colleagues propose another model. Mindfulness training has been operationalized to reach some learning goals (Baer et al. 2006): 1) nonreactivity to inner experience; 2) observing/noticing/attending to sensations, perceptions, thoughts, feelings; 3) acting with awareness/not on automatic pilot/concentration/nondistracted;

4) describing/labeling with words; 5) nonjudgmental of experience. These can be summarized with the words: nonreact, observe, actaware, describe and nonjudge. Also some of these categories are similar to the ones I found.

With regards to didactical structure of meditation schools or courses, I will start doing research just on this in a few weeks time so I will not examine this issue here. Just consider that meditation courses are offered to the public mostly in an informal way, through flyers, announcements and so on. They take place in informal places through lessons given by informal teachers. As I said, being meditation training and informal learning, the settings and social contexts where it is possible to try this experience are usually vague and various. However, here below I have described the most important educational and social settings and environments where meditation is actually employed – rarely – and where it could be employed in the future.

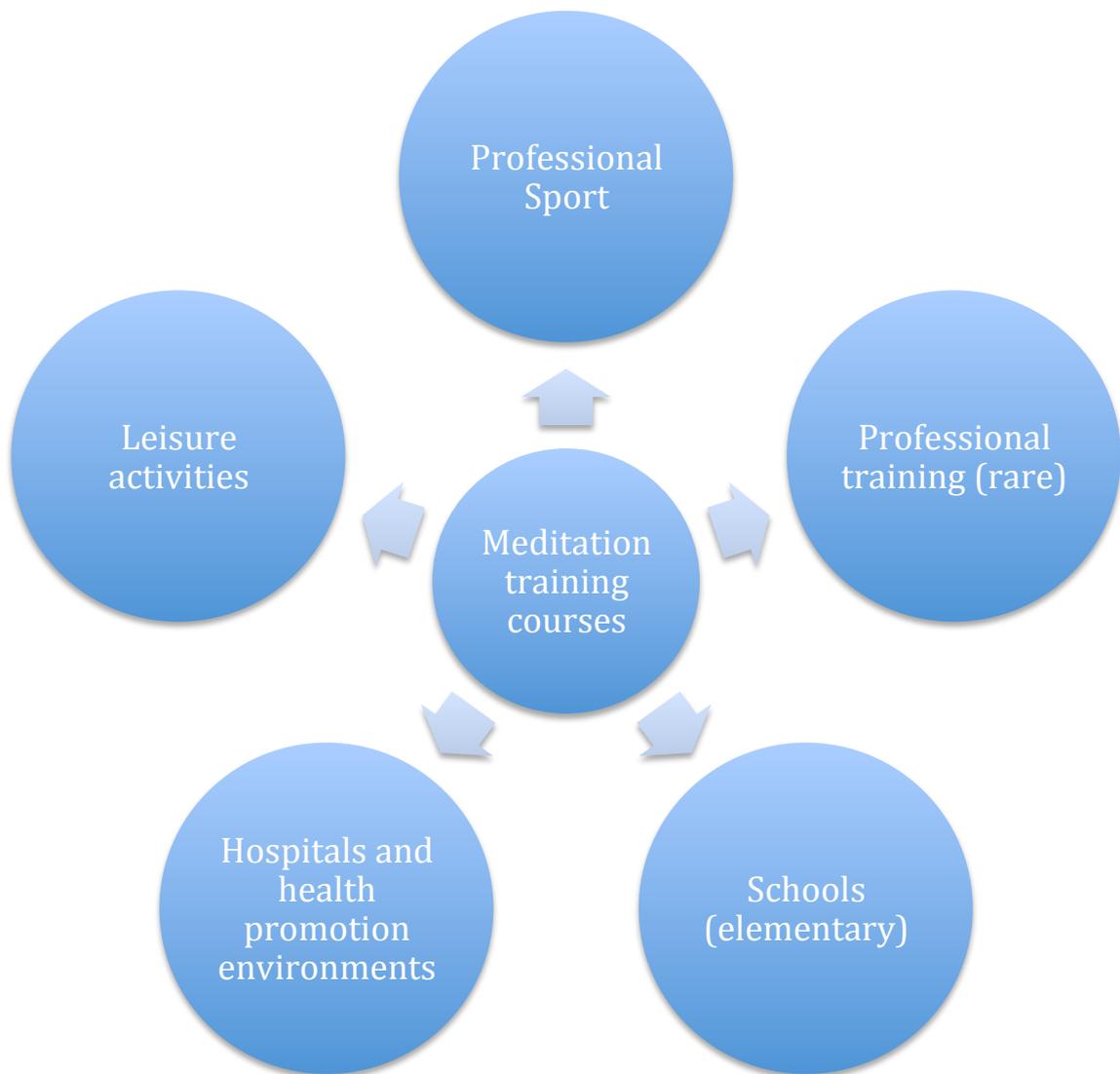


Figure 3 Contexts where meditation is already used

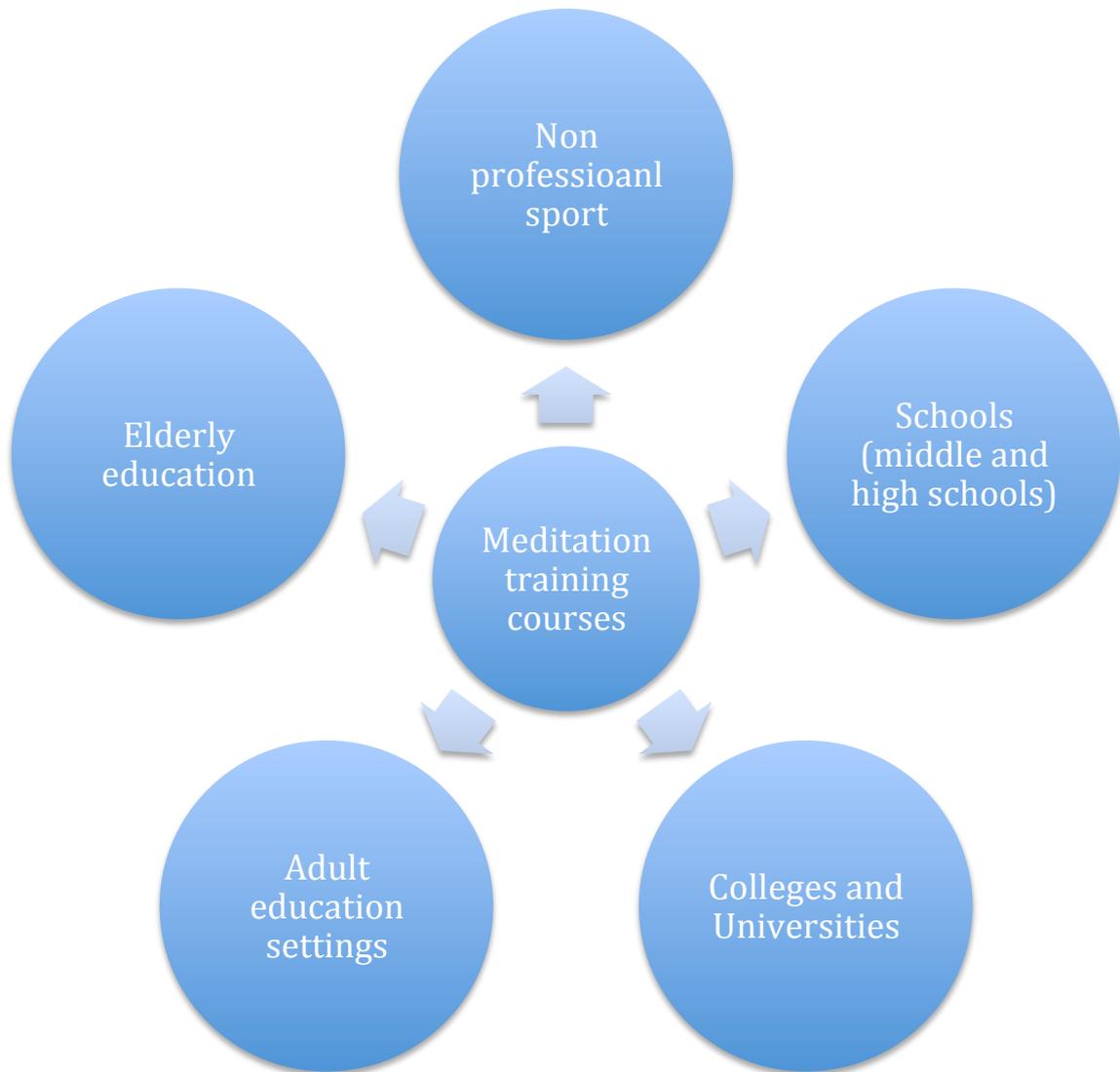


Figure 4 Contexts where meditation could be used or improved

2.2.2 On becoming aware: educating the mind

Within Zen's tradition it is common to say that consciousness will always be one degree above comprehensibility. This concept is close to the one that I have already presented in the text about the difference between the pre-reflective self-consciousness and the reflective self-consciousness. There is an unreachable level of being aware that consists in the fact that there is a gap between being conscious and describing and comprehending the states of consciousness; but who works within the educational field knows that the real problem doesn't concern the level of consciousness of a subject, his ability to be aware; this is just the first step that an educator has to take when facing this question. The real problem is related to the conditions for a development of the awareness, that is the pedagogical condition to allow the subject to make a step, from a level of competence to another level of competence. This is development (Fischer 2009; Fischer, & Bidell 2006). This is what 'becoming aware' means; not 'being' aware but 'becoming' is really pedagogical.

How is it that mindfulness/awareness can be developed? What I suggest, bringing back the teachings of great masters, is that mindfulness can be considered a skill among others, like reading, writing or something else, and its development has to be treated as the others; in the case of mindfulness attitude, it can be also considered a training of good habits because there is an ethical question that cannot be avoided. I will consider this point later in the text. The mental fact of mindfulness is being strengthened like the training of a muscle that can then perform harder and longer work without getting tired easily. Moreover, awareness is considered part of the basic nature of the mind, which has been temporarily obscured by habitual patterns of grasping and delusion but that can be developed, as well as every natural potential that human beings have. "As all these habits are cut through and one learns an attitude of letting go, the

mind's natural characteristic of knowing itself and reflecting its own experience can shine forth. This is the beginning of wisdom or maturity (prajna).” (Varela et al., 1991, p. 26) Thus the questions are: can we educate consciousness? How? For what attains my thesis, the answer is yes to the first (Depraz, 2006; Depraz et al., 2003; Lutz et al., 2008; Varela et al. 1991; Siegel, 2007; 2010;), and through meditation (not exclusively) yes to the second.

As we will see in the data's chapter, the difference between the self reports of expert meditators and the self reports of beginning meditators is a good set of indicators to understand which way we have to go to better improve awareness. Some of them have to do with the linguistic barrier that subjects face when describing inner experiences, indeed one of the main problem for consciousness is to translate the inner experience into linguistically formulated concepts, but with a training process that becomes easier, as we see from my data. Some others are related to the atomistic perception of consciousness as states of consciousness versus the fluid and harmonic perception of consciousness as a flow of consciousness (Siegel, 2007); another one is related to the different role played by the body; one more consists of nonjudging the experience itself, letting it go; and so on.

Education for becoming aware is not (usually) done at school, but we see that the informal proposal made by informal schools and courses attracts more and more adults as if the educational settings for the development of awareness were deeply intriguing for adult people. And this certainly is. The ability of being aware is strictly related to the conduction, interpretation and comprehension of the daily, ordinary, normal life. What people learn during meditative courses is nothing miraculous or transcendental – at least within mindfulness meditation courses – but it is something very concrete and pragmatic, that is the way to stay in the *Lebenswelt*; people usually

learn to look at the world in a different way, changing their gaze, and so switching from experience to *lived experience*, where the subject is fully present and can better appreciate what is going on. Indeed, a trained mind realizes that being present to the world and to itself means being present to the *present moment*, with great awareness of the temporal dimension of the life of the mind. This does not imply the necessity to avoid the metacognitive or narrative attitude; on the contrary metacognition is a strategic cognitive activity necessary to recollect the events in a meaningful order, taking a break from the actual and direct connection to the material world and re-creating sense it makes to experience (Dallari, 2000). What I mean is that metacognition can not substitute awareness but it has to be considered as a sort of support. I mean that it is necessary to be aware, present, and mindful in everything one is doing, saying, thinking or reflecting. Being there, where we are.

Indeed there is the fundamental question of the development of the first-person perspective (FPP): the capacity to ascribe meaning to factual short-term events, physical and mental, that occur during the meditative experience and lead to the development of the self identity within a long-term perspective. This is tantamount to a phenomenological chronicling of the construction of self in relationship to the body, and to the emotions and feelings that emerge in the process (Dallari, 2000; Damasio, 2000). In this case, there are two points we need to take into consideration: bodily consciousness and the bodily self. By ‘bodily consciousness’ I mean the immediate and direct nature of lived experience, an integrated and dynamic brain-body process (Thompson, & Varela, 2001; Edelman, & Tononi, 1998), the ability to detect the physical and mental processes during the experience of meditation and to describe them as closely as possible immediately after the experience itself. In this case, the focus is on ‘what’ happens and ‘how’ it happens during the flow of time.

By the ‘bodily self’ I mean the narrative aspect of identity linked to the body, that is, the ability to represent one’s self and one’s own lived body beyond the single body experience, even if in connection with it, according to a wider time span (Dallari 2000; Ricoeur 2002). The specific aim of mindfulness meditation, according to Varela and colleagues (1991), lies in the ability to develop ‘presence in the moment’, that is the ability to be aware of the dynamic flow of consciousness and experience. As they write (1991, p. 37), “mindfulness means that the mind is present in embodied everyday experience; mindfulness techniques are designed to lead the mind back from its theories and preoccupations, back from the abstract attitude, to the situation of one’s experience itself.” Nevertheless, as we will see in the next chapter, meditative practices always include some re-cognition activities, as the request to describe the meditative experience as it happens – which is the same question I asked the participants to my study. Long-term meditators develop an attitude of reflexive thought about their ongoing experience. According to Shapiro, Carlson et al. (2006), mindfulness practice can accompany a perspectival shift which allows a person to step back and ‘reperceive’ his/her own experience in a less reactive and judgmental way. Typically, the student inculcates mindfulness/awareness in periods of ‘formal’ sitting meditation.

The way in which the mind reacts to these kinds of bodily experiences and the ways in which subjects control themselves and their minds are very interesting topics for the cognitive and education sciences. Perception and meta-awareness of the flow of consciousness are two of the goals of mindfulness meditation and are usually developed over long-term meditation practice. This is a learning process that needs to be studied, both from phenomenological and educational perspectives.

As well as other cognitive functions as writing, reading, speaking, calculating and so on, being aware is something that can be learnt, can be improved. This is what I

mean when it comes to *learning consciousness*. Learning consciousness is the consciousness that learns to be in contact with reality, that is to be able to stay in the flow of experience without losing the ability to understand what is going on. This is not only an attitude that comes from meditative practice; this is also an attitude that can be improved through the phenomenological method. But we have to admit that this pedagogical work on consciousness is not something present in the didactical programs and activities at school or, if it is, it is quite rare.

Following Thompson's suggestion about the division between static and genetic phenomenology, I would like to consider genetic phenomenology from a pedagogical point of view (Thompson 2007, p.29) (figure 6) definitely as the best option if compared to static phenomenology (figure 5) to describe and express the 'learning consciousness', that is the possibility to develop, change and improve the way in which the consciousness tends toward the object (*idem*). Indeed

“static phenomenology analyzes the formal structures of consciousness, whereby consciousness is able to constitute (disclose or bring to awareness) its object. Static phenomenology takes these intentional structures and their correlative objects as given and analyzes them statically or synchronically. Genetic phenomenology is concerned with how these intentional structures and objects emerge through time; there, it cannot take them as given. Instead, it analyzes how certain types of experience motivate later and more complex types – for example, how implicit and prereflective experiences motivate attentive and reflective experiences. From the perspective of genetic phenomenology, experience has a sedimented structure, and the process of sedimentation needs to be understood in relation to the lived body and time-consciousness.” (2007, p. 17)

Thus, the structure of the I-object relationship is a dynamical relationship that occurs through lived experiences and it can be active or passive (Thomson 2007, pp.29-30):

- a) Active genesis: “In active genesis subjects play an active and deliberate, productive role in the constitution of objects. The products of active genesis are tools, artworks, scientific theories, experimental interventions, logical judgments, mathematical propositions, and so on. Active genesis, however, always presupposes a passivity where one is *affected* beforehand.”
- b) Passive genesis: “It must be stressed that “passive” in this context does not mean a state of inactivity, but rather a state of being involuntarily influenced and affected by something. In particular, it means being influenced and affected on an aesthetic level, in the original Greek sense of aesthesis as sense perception, especially including perception and felt experience of what is attractive and unattractive.”

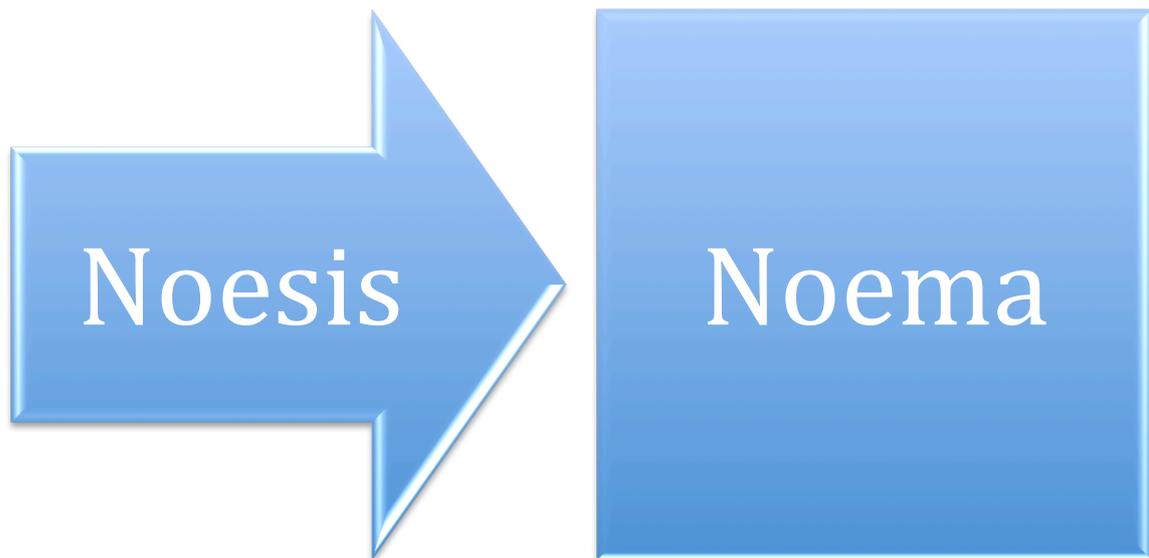


Figure 5 Static phenomenology

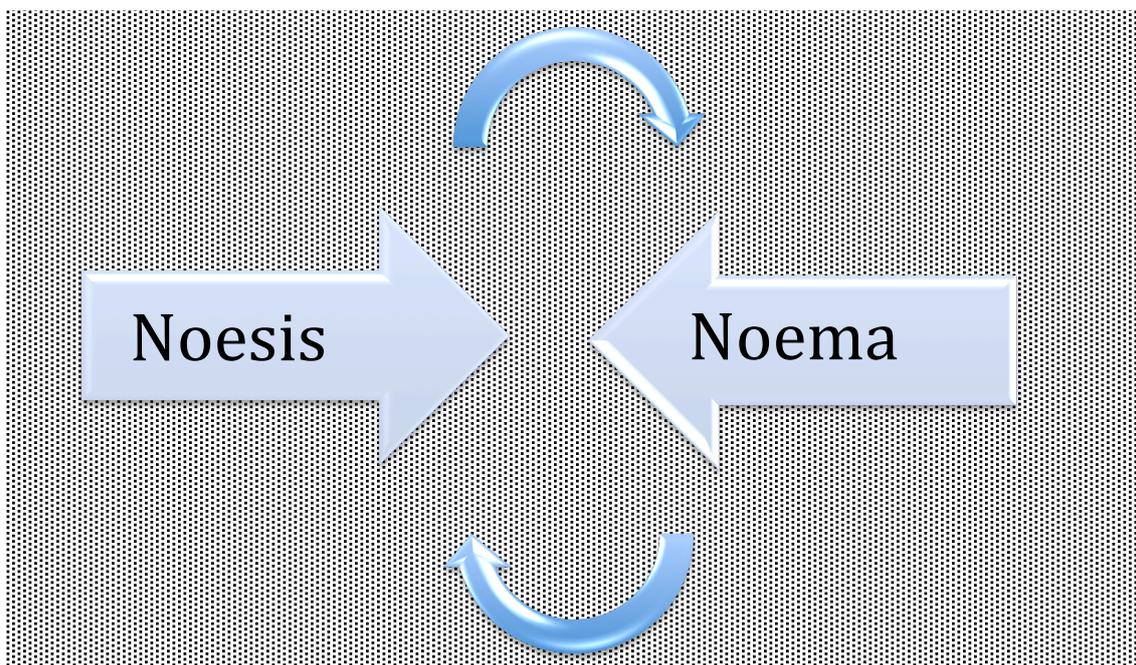


Figure 6 Genetic phenomenology

Following these phenomenological suggestions, we can say that the learning consciousness can be trained on at least three different levels of skills:

- a) Ability to read the structure of the object/noema;
 - b) Ability to read the meaning of the noema;
 - c) Ability to read the structure of the consciousness itself;
- a) The first point, among others, has been typically developed by the proponents of the so-called descriptive phenomenology (Applebaum, 2007; Giorgi, 1975; 2009). From their perspective the interpretation of the object and its emotional effect on the subject were less interesting than the ‘pure’ description of it.
- b) The second one has to do more with the hermeneutical tradition of phenomenology, where the interpretation of what the object means is fundamental. (Moustakas, 1994; Van Manen, 1990).
- c) The third one has to do with phenomenology itself, and also with the metacognitive and narrative theories that derive from the cognitive sciences and learning theories. In this case the important thing is to be able to read not only the object or its effects on the person but also and especially the mind’s posture (Mortari, 2002), that is how the person usually acts – the act of consciousness-when encountering objects. The metacognitive questions in this case are: do I have any scheme, any pattern, any strategy that I can recognize in my consciousness?

A good testimony of the importance to gain awareness of our own mental presence, that is to become aware in daily life is as follows. Epstein (2001, p. 64) wrote: “Musical practice has had a different influence. Because I trained first as a musician, then later as a physician I was surprised in my otherwise excellent medical education by

a striking lack of attention to the self of the practitioner. In contrast, in music study, which can be as theoretically and technically complex as any medical specialty, the self of the performer is an object of constant study and reflection”. This lack of attention to the self and consciousness is huge both in schools and in professional/work settings and needs to be more carefully discussed and investigated by pedagogy. Meditation is an educational method just for that.

2.2.3 A reflective mind: self, metacognition, and narrative

It is common to think at Buddhism or Zen as methods to dissolve the mind, the intentionality and the will. In those cultures there is a concept, called ‘Wu-Wei’, which means ‘no-mind’ and which refers to the effort to reduce the presence of the intellect in action (Lutz et al., 2007). The mind could interfere with the fluidity of action, it could reduce its smoothness and its precision, that is the reason why there are some techniques – in martial arts, meditative practices, gardening, painting, writing and so on – used very often in Buddhism or Zen schools; the aim of these techniques relies on developing the presence of the mind in the ongoing action, an action that does not depend on the mental ability to plan it and execute it, but instead on the strict and deep connection between the mind and the body, where often the mind just follows the stream of the action. To reduce the presence of the mind and to implement the ‘natural action’ does not mean to avoid or refuse any reflective and metacognitive attitude. On the contrary, the reflexive attitude is necessary to develop an ongoing mind.

Embracing multiple perspectives has the quality of a metacognitive skill. In this metacognitive view we can then see perspective as not only a changing frame of

reference but also one that needs to be considered in viewing the situationally embedded meaning of knowledge. Mindful awareness has at its essence metacognitive development (Siegel 2007; 2010). We become aware of awareness, can think about thinking, attend to intention. All of these dimensions of mindful learning are supported by present orientation on the level of information processing and self-relevance in learning. This orientation to the present feels like a completely consistent frame of being aware of the present moment with the more rigorously developed mindful awareness that emerges with training in a mindful awareness practice. Mindful awareness may be trained with deep practice and mindful learning may be evoked rapidly in a teaching setting. (Siegel, 2007, p. 242)

Long-term meditators develop an attitude of reflexive thought about their ongoing experience. According to Shapiro, Carlson et al. (2006), mindfulness practice can accompany a perspectival shift that allows a person to step back and ‘reperceive’ his/her own experience in a less reactive and judgmental way.

Metacognitive skill has the aim to introduce the subject to his own mental life gaining control on it; this is a part of mindfulness teaching that cannot be underestimated: “The purpose of calming the mind in Buddhism is not to become absorbed but to render the mind able to be present with itself long enough to gain insight into its own nature and functioning” (Varela et al., 1991, p. 24). That is what Varela and colleagues make the point about the connection between meditation and metacognition. The metacognitive activity refers to the ability of being aware, control, change and develop ones own cognitive functions as remembering, speaking, interpreting, making decisions and judgments, ethic, self perception and so on. As Varela used to say, the consciousness is the ability of the system to question the system itself, and this is a metacognitive skill.

Also Tarozzi expresses the need to think of meditation – mindful and Buddhism meditation – not only as attentional training for the awareness of the present moment but also as a method to develop the metacognitive skills, that is how the subject thinks about his own mind, and the ethical attitude thorough narrative. Tarozzi makes clear how the narrative competence – strictly related to metacognition (Dallari, 2000) – is essential in Eastern practices. Indeed Eastern philosophy seems to recall the subject to a personal responsibility for self education, and the narrative skills are at the base of this responsibility:

“Il rischio, infatti, è quello di ridurre le direzioni dell'intenzionalità autoriflessiva e narrativa implicite nel Buddismo alla sola dimensione della meditazione e lasciare in ombra altre dimensioni implicitamente o esplicitamente narrative, e di conseguenza anche autoformative, della visione buddista. Il Buddismo è in sé un processo che è legittimo definire di autoeducazione, è essenzialmente un processo di emancipazione dell'individuo.”(Tarozzi, 2002, p. 18)

In Buddhism, especially in the Mayana tradition, the narrative is essential for developing a right attitude toward self knowledge and self education; for doing that meditators have to understand that the relation of thinking-speaking-doing is not so hierarchic but complementary; when we ask which is the causal mechanism between thinking, speaking, acting the Eastern tradition answers that there is not a linear causal effect but we have to think in a circular way, a reciprocal causation between the mind and the body and often the body and action precede the mind and the thought. In Tarozzi (2002, pp. 20-21) we read:

“Questo processo ribalta la successione tradizionale che vuole l'agire come conseguenza del comprendere e la verbalizzazione di quella comprensione come stadio intermedio, che prelude e consente

l'azione. Prima si comprende, poi se ne può parlare, infine si può fare. Su questa successione, comprendre-dire-fare, si basano, ad esempio, tutti i processi educativi formalizzati, ma anche l'impianto etico-giuridico occidentale, così come la tradizione scientifico-tecnologica. In definitiva la modernità si è costruita su questa successione. Per questo risulta particolarmente rischioso e avventuroso per un occidentale moderno accettare che la consapevolezza, e contestualmente, il cambiamento del proprio destino o karma, avvenga secondo una sequenza inversa: fare-dire-comprendere. L'esperienza, l'agire, precede le parole e queste anticipano i pensieri. Ascoltare un insegnamento da parte di un maestro (tutti i sutra mahayana iniziano con la frase di rito "così ho udito"), significa innanzitutto agirlo, metterlo in pratica. Attraverso il racconto di quell'esperienza vissuta agli altri (e quindi a se stesso) il buddista comprende, interiorizza, dà senso a ciò che gli è accaduto e lo razionalizza, per raccontarlo nuovamente, con una diversa coscienza e la capacità di cogliere il modo più efficace per raggiungere il cuore dell'interlocutore.

Thus action seems not only to follow thought or language as in a linear hierarchical model where it should be the effect of supposed higher-level causes; action has its own 'life', its own autonomy and power to lead thought and language and to help the subject to learn, reflectively.

It is also necessary to recall the fact that metacognition and narrative competence have social and interactive dimensions that have to be taken into consideration within the educational context, avoiding in this way a solipsistic or mystic version of meditation.

“Dunque la meditazione e più in generale la pratica buddista, e qui mi riferisco a chi ha intrapreso un cammino di emancipazione personale come scelta di vita e non a chi si limita a trascorrere qualche fine settimana in un tempio a meditare, anche quando sono finalizzate al

lavoro di scavo e di approfondimento dell'interiorità, conducono ad una zona nelle profondità del sé, che diventa inessenziale colonizzare completamente con la ragione, che rimanda necessariamente agli altri.

Il significato della narrazione ha pertanto in definitiva un'ineliminabile e fortissima valenza sociale e intersoggettiva. Nel senso che la narrazione di sé nel Buddismo Mahayana non può prescindere dal fatto di dire di sé ad un altro. Questo è lo spirito della figura del Bodhisattva che domina prepotentemente la visione moderna del Buddismo. È un raccontarsi agli altri per testimoniare attraverso prove concrete la grandezza dell'insegnamento, il potere della fede, i cambiamenti avvenuti nella realtà di vita, la propria rivoluzione umana". (Tarozzi 2002, p. 25)

Thus we don't have to think about the meditative and inner experience only as a solipsistic experience; indeed, there is a very important role of social attitude in meditation that has to be taken into consideration. Tarozzi (2002, p. 29) again explains how

"In conclusione, quindi, il significato della narrazione di sé nel Buddismo si iscrive in un contesto dinamico, evolutivo, della storia della persona: non è una fotografia statica del presente, non è un dirsi autocontemplativo, né un dirsi introspettivo, solipsistico, quanto piuttosto il dire di un percorso evolutivo che mostra la potenzialità emancipativa e trasformativa intrinseca a ogni individuo. Parlare di sé delineando il percorso è parte integrante della pratica: tanto della pratica per sé (la liturgia), quanto della pratica per gli altri (condividere, incoraggiare, sostenere). Il valore della mia esperienza è infinito se può essere ispirazione per gli altri in un lavoro di interpretazione infinita e, come si è visto, non può essere altrimenti."

3 Transforming the first-person perspective: self-consciousness and the embodied experience of meditation

3.1 Methods for consciousness: qualitative methodological issues for studying the embodied mind

In qualitative research it is fundamental to clarify the epistemological assumptions from which one operates. The paradigm for research, as defined by Denzin and Lincoln (Denzin & Lincoln, 2000, p. 157) is a "basic set of beliefs that guides action" that describes the principles driving the world view of the researcher and his work. Research methodology is the phenomenological methodology which falls into the field of naturalistic epistemology (Mortari, 2007; Moustakas, 1994; Tarozzi, 1997). Phenomenology is both a research philosophy and a research methodology which may be regarded as the study of intentional consciousness, that is the way in which consciousness constitutes the objects and itself. The phenomenological motto of 'going back to the same way' means to put in brackets (*Epoché*) (Tarozzi, 1997) prejudices and judgments and look at the experience in a direct way with the sole intent to capture one's appearance: 'Phenomenology is concerned with attaining an understanding and proper description of the experiential structure of our mental/embodied life' (Gallagher, 2008, p. 9). In qualitative research this is valid not only for the participants but for the researchers too.

The phenomenological research tradition – especially in psychology and educational sciences – has already largely discussed the problem of how to investigate the subjective experience, and it has developed some different versions suited to analyze the phenomena of the mind. It has to be noted that the definition of a precise and

rigorous method to collect data in first-person perspective is at the heart of current research programs in embodied cognitive sciences also from which this study derives. Considerable importance was attached from the beginning to this hybrid field between phenomenology and cognitive sciences to the so-called first-person method and second-person method for the investigation of the consciousness and the lived experience (Depraz et al., 2003; Overgaard, 2008; Varela, 1996; Varela, & Shear, 1999; Varela, et al., 1991; Zahavi, 2005). As Chris Frith says: ‘A major programme for 21st century science will be to discover how an experience can be translated into a report, thus enabling our experiences to be shared’ (Frith, 2002). The interest not only in study but also in the development of first-person perspective on the subjective experience is at the basis of this study, and the proposal to make the subjects repeat several times the same experience and the description of it is one of the strategies for stabilizing the reports.

There are some different phenomenological methods to which I referred for my studies; some of them are closer to psychology and education (Giorgi, 2009; Moustakas, 1994; Van Manen, 1990) some others are closer to cognitive sciences (Lutz et al., 2002; Petitmengin, 2006; 2010; Hurlburt, & Heavey 2001; 2004; 2006; Shear, & Varela, 1999; 1999a); a further distinction can be made between the last: in fact Lutz’s and Petitmengin’s methods provide preliminary training to the subjects through repeated experiences to help them to identify verbal and conceptual categories that best define their experience (Le Van Quyen, & Petitmengin, 2002; Lutz et al., 2002; Lutz, & Thompson, 2003; Petitmengin, 2006; 2010); instead Hurlburt and Heavey provide a method for the immediate, intuitive and naive approach of the subject to his own experience, an approach that can change in consequence to a repeated experience but not with a guide or predetermined specific training (Heavey, & Hurlburt, 2008; Hurlburt, & Akhter, 2006; Hurlburt, & Heavey, 2001; 2004; 2006). However, all the

phenomenological methods have a common presupposition that is well explained by Mortari and Tarozzi (2010, p. 8)

Therefore, what a phenomenologist uses in the research are not facts or objects, pieces of world, but phenomena. These are not what interferes between us and things, preventing us to see them, to perceive in their givenness, but according to phenomenology they are the ways in which things themselves give to us and exhibit their own being.

Subjects inhabit in the lifeworld. The researcher extracts his/her data from this world. So they are not fragments or samples of the world, but perceptions, intentional acts of the consciousness that gives meaning and organizes that world. But it is not a question of visions purely objective, individual constructions, psychic phenomena, mere singular representations. But intentioned objects, phenomena revealing the hidden profile of things. Husserl's phenomenology is a description of the experience attentive at its invariant features and at the intersubjective value of perceptions.

In a study that deals with education like mine, however, the two different versions are not in conflict since the subject, while not being initially trained to identify conceptual categories and units of meaning appropriate to the description of the subjective experience – excluded a brief initial task training that helps subjects to understand what they have to do – it is assumed they would be able to refine upon their descriptions as a natural result of the experiential practice undertaken. If this happens, how and when, is the object of study for my research.

The method that I used is closer to the DES method because we were interested in catching the so-called *pristine experience*. Indeed the Descriptive Experience Sampling (DES; Hurlburt, & Heavey, 2001; 2004; 2006) is a research method developed to describe as faithfully as possible the 'inner experience,' by which the

authors mean that anything is going on in awareness at a particular moment (defined by a beep), whatever is ‘before the footlights of consciousness’ (as William James would say) at that moment. That is, DES seeks to describe whatever phenomena are directly occurring to a person at a precise moment. It is a method for the observation and description of inner experience as it happens at a specific moment and specific place. Briefly, DES subjects wear random beepers in their natural environments. The random beep cues the subject immediately to pay attention to the inner experience that was ongoing at ‘the moment of the beep’ – the last undisturbed moment before the beep interrupted their natural environment. The difference between the DES and the phenomenological method we used is that we didn’t ask participants to describe random moment marked by a beep, but rather to describe the pristine perception of a specific weekly experience, the meditative experience.

The phenomenological method aims at observing natural occurrences, experienced phenomena in their *pristine state*, unspoiled by the act of observation or reflection. We use ‘pristine’ here in the same way that we would use it in saying that a forest is pristine: unspoiled by civilization (Hurlburt, & Heavy, 2006).

We recognize that a pristine forest contains things that are clean and dirty, simple and complex, healthy and rotting; however, it does not have the clear-cut stumps and plastic bottles that are the signs of human exploitation, and it does not have the park-service maps and visitor centers that tell you how to see and therefore interfere with the seeing of what’s already there. Likewise, pristine experiences can be simple or complex, clear or messy; we use ‘pristine’ to refer to experiences in their natural state, not disturbed by the act of observation, unplanned, unmapped, un-‘figured out’ already, uninterpreted, unheuristicized real experience. (Hurlburt, & Heavy, 2006, p. 89)

Accordingly, DES aims at observing pristine experience, actual phenomena that are actually being experienced by actual people at actual moments during actual natural activities, free of any artificial interference by the investigator. Of course it is impossible to completely avoid the role of the researcher but in this case the aim is to reduce it, keeping the subjective experience as whole as possible in its *ecological dimension* (Mortari, 2002).

Pristine experiences are fundamental data of consciousness studies: pristine experience is the way real people experience real things in their real lives. I as a person am who I am in large part because of the things I experience and the way I experience them. As Hurlburt and Heavy (2006) specify, in any given moment of any real person's existence, there is a welter of potential experience, some external (a myriad of surrounding objects and people, features of the environment such as temperature, wind, brightness, sounds, tastes, smells, etc.), some interoceptive, proprioceptive, kinesthetic events (pressures, pains, hunger pangs, limb/joint positions, tickles, itches, etc.), some innerly created events (thoughts, images, feelings, etc.). At every moment, a person selects/creates some very small number (often just one) of those potential experiences to form that moment's actual pristine experience. Different people do that in different ways: one consistently creates visual images that are quite unrelated to the immediate environment; another, exactly in the same environment, consistently attends to emotional experience; a third, also in the same environment, consistently pays attention to the sensory features of that external environment. The way in which different people – but grouped in two samples – live the same meditative experience is what we investigated with the phenomenological method. Thus, as we will see, inner experience include thoughts, feelings, tickles, sensations, inner or external seeings, inner or

external hearings, kinesthetic awarenesses, tastes, and so on, anything that is explicitly a part of the ongoing awareness.

Some scientists have preferred the terms ‘consciousness,’ ‘conscious experience,’ ‘experience,’ ‘subjective experience,’ or ‘in awareness’ to the term ‘inner experience,’ because ‘inner experience’ seems to favor ‘inner’ experiences such as thoughts and feelings over ‘outer’ experiences such as visual perception and sensation. I do not explicitly favor the ‘inner’ over the ‘outer’ in this way – I am interested in whatever phenomena are occurring, whether inner or outer. I believe that there is no best term; all have their advantages and drawbacks. Suffice it to say that by ‘inner experience’ DES means anything (inner or outer) that emerges into a person’s awareness, or coalesces, or becomes a phenomenon, or is experienced, out of the welter of inner and outer stimuli that simultaneously impinges on a person. As Hurlburt and Schwitzgebel (in press) discussed, the authors modify ‘experience’ with the term ‘inner’ because the unmodified ‘experience’ is too broad—they don’t wish to consider things like work experience or the moviegoing experience unless they happen to manifest themselves as explicit phenomena that occur within a person’s awareness directly at a specific moment. I will not discuss further the question of the terms. For a deeper analysis about that, see Overgaard and colleagues (2008). Based on that article, and remaining into the phenomenological tradition, I will use here the terms consciousness, lived experience, subjective phenomena.

Wanting to investigate the conscious experience of subjects, I choose the phenomenological method because it is undoubtedly the right method for qualitative investigations about conscious experiences. The phenomenological method rules out anything that is outside of ongoing awareness. Thus it rules out ‘unconscious’ processes of any kind. It rules out physiological events (neuron firings, peristalsis, homeostatic

adjustments, and the like) unless they are specifically part of awareness. It rules out explanations and interpretations unless they are specifically part of awareness. It rules out events that have occurred before or after the actual moment of the question, the moment of the request to describe the personal experience.

The phenomenological method is thus a fundamentally idiographic procedure: it produces a characterization of one particular person's experiences. It is essentially irrelevant whether that person's experiences are similar to or different from some or most other people's experiences; the primary object is to characterize faithfully an individual person's experiences. However, in some phenomenological as well as some DES studies, a collection of subjects who have some features (psychiatric diagnosis, for example) in common are investigated. In those studies, the investigator produces an idiographic characterization of each subject as described above and then examines all those characteristics to discover whatever salient characteristics might emerge across the collection of subjects. This allows the investigator to produce an across-subject or nomothetic characterization of the collection's in-common salient inner experiences.

Thus we used the phenomenological investigation as an idiographic procedure in one of two basic ways: as a purely idiographic procedure to encounter/describe the experienced phenomena of one individual; and as a series of idiographic procedures as steps in the direction of a nomothetic goal.

The salient features that emerge from both phenomenological and DES studies (both within-subject/idiographic and across-subject/nomothetic) are often features of the form or pattern of how experience occurs within individuals. For example, salient form characteristics frequently involve inner speech, visual images, unsymbolized (unworded, unimaged) thinking, sensory awareness, or feelings. Content features or the pattern of what is being experienced can also emerge as salient characteristics.

A valid and interesting explanation of how the phenomenological methods differ from the conventional experimental method has been done by the Italian phenomenologist Paolo Bozzi, and here below I have reported the scheme as Michael Kubovy suggested when he wrote the Gestalt Psychology's voice for the MIT's Encyclopedia of Cognitive Science (2001).

	CONVENTIONAL METHOD	PHENOMENOLOGICAL METHOD
SETTING	Isolated and controlled	Every setting
PARTICIPANTS	naive	Every kind
TASK	Defined	Negotiated and shared
ANSWER	First and spontaneous; unchangeable; correct or incorrect; unambiguous; classified a priori	dense and rich of information; changeable; always good; classified a posteriori

Figure 7 Bozzi's differences between conventional and phenomenological research methods, in Kubovy (2001).

The qualitative research methods suffer of a lack of generalizability of the results and because of that they are not believed to be useful in cognitive sciences.

“It is totally mainstream in psychology or in cognitive science to have experiments where you ask people, Did you see this? Did you see that? Were you aware of this? This is the classical technical verbal report, which is used widely. ...However ... it doesn't do justice to the richness and complexity of what is experienced. The verbal report requires somebody there who says, 'Yeah, I saw it', so there is some kind of access to experience. But it remains extremely impressionistic. [It] needs to be developed further. ...One key thing: disciplined regular training. Without really specific regular training, like everything else in human affairs, you stay a beginner.” (Gallagher, 2008, p. 18)

This is a feature of the phenomenological method: the subject, through the attention paid with her own experience, learns to be more aware, she *learns to perceive and describe the experience*, so being able to better reach the pristine personal experience. We must distinguish between our ability to index our experiences and our ability to indefinitely finesse such descriptions (Francesconi & Gallagher, 2009; Gallagher & Francesconi, in press).

3.2 A qualitative study on self consciousness: changes in first-person perspective following meditative practices in beginning and expert adult subjects

3.2.1 Method

Pilot study

A pilot study has been conducted to test 1) the request to submit to the participants and 2) the duration in minutes of the moment dedicated to write the verbal report after the meditation session. This pilot study, conducted on 7 volunteers, revealed that the best solution for our goals was to use a very restricted question, focused on the actual experience, and to allow a short range of time to the participants for the experience description; these strategies were implemented to move the subjects' attention toward the pristine experience avoiding the hermeneutic attitude; obviously the interpretation of an experience is always present when asked to describe it, but our interest, as I had already specified earlier, was to reduce the interpretative dimension of the self reports, promoting the descriptive one. Thus, after the pilot trials, we decide to avoid a too broad question and too long time available for the self report.

Method

The two different phenomenological methods I used are the following: a) the snapshot written report, b) the open-ended interview.

- a) The snapshot method is something quite unusual within qualitative methods in the educational sciences. We adopted this method from DES (Hurlburt, & Heavy 2001; 2004; 2006) IPA (Smith, et al., 2009) and the neuro-phenomenological

method (Lutz, et al, 2002). Some characteristics are: 1) to reduce the temporal distance between the experience and the description of the experience; 2) to encourage the immediate and pristine description, minimizing retrospection; 3) to reduce the narrative/metacognitive attitude of the subjects (*presentation vs. re-presentation*, Thompson, 2007, p. 24); 4) successive approximation to faithful reporting; 5) bracketing presuppositions; 6) non-leading attitude of the researcher; 7) bottom-up theorizing.

b) With regards to the final open-ended interview, we took in consideration the method suggested by Petitmengin (2006; 2010), which consists of an interview process that has to help the subject to refine its own descriptions and answers through a training process – in the form of interaction – conducted by the researcher. The role of the researcher in this case, but only in this case, is more important than in the first phase of the research.

Participants

The groups were composed of 22 participants, 10 experts and 12 beginners. Identification data had been collected prior to the study, such as age, qualifications, current and past occupations, customary meditation practices and sport practices in general, and the reasons for participating in the course.

Here below is the table about the demographic data collected from participants.

	Beginners	Experts
Number	12	10
Age	M 36; range 23-49	M 48; range 33-65

Sex	8 females	6 females
Meditative experience	Less than 2 months	More than 9 years
Ethnicity	8 Americans; 3 Afro-american; 1 Latin	9 Americans; 1 Afro-american
Religion	4 Christians; 5 Atheists; 2 Buddhists; 1 Hindu	4 Christians; 4 Buddhists; 2 Atheists

Following other suggestions (Lazard, et al., 2005; Lutz, et al., 2008;) we considered experts subjects with more than 9 years of practice and beginners with less than 2 months of practice. Only healthy adults were selected; a pre-screening interview had been administered to evaluate physical and mental conditions of the subjects. Four people were excluded from the study due to their medical conditions or physical experience.

Subjects were recruited in the field, that is in meditation schools; an advertisement had been used to recruit them. Meditators had also been randomly recruited amongst the students at Harvard and flyers had been distributed by hand and hung on the boards. In both cases, experts and beginners, a snowball sampling procedure had been used asking individuals to spread the information to people who could be interested in participating. Participants received a monetary compensation at the end of the research, right after the open-question interview. Compensation was prorated when participants withdrew early. Some meditation schools were contacted in the Boston area to ask for permission to spread the flyers to their students.

The subjects signed the written IRB-Harvard ethical consent form and they received a copy for their records.

During this preliminary meeting all the information required by the Ethical Committee and needed by the subjects was communicated; few and simple instructions were provided as well as a short pre-task training session: following Depraz (2006; Depraz, et al., 2003), Lutz and colleagues (2002) and Petitmengin (2006) this training experience was done to make the subjects familiar with the required weekly task.

Material

Voice recorder, notebooks, and field materials. A notebook for writing self reports was provided to all subjects during the first meeting. Subjects' notebooks were identified with key codes as well as subjects' identities and final open ended interviews.

Task and procedure

The study was 8 weeks long. A pre-post questionnaire (attached) was assessed at the beginning and at the end of the study. The data from the questionnaire are not presented in this thesis. During the study, right after the completion of a meditation session (both in the meditation class or at home, according to participants' preference), participants described in a notebook (for not more than 5 minutes) the experience that they had been through; this written self-report occurred weekly mostly on the same day; to assure constant participation, a weekly-reminder in the form of an email was sent to each participant on the same day every week. The notebooks of the meditators were collected at the end of the period. Participants were asked to write down their description following this request: "Please describe as closely as possible the experience you have been through just now as you lived it". "Such an open question allows subjects

to produce more complex responses and to describe the experience in its own terms' (Overgaard, et al., 2008).

An open-questions interview was conducted with every single participant at the end of the study. The survey and interview were the only procedures conducted for research purposes and the meditation sessions took place regardless of whether or not the study was conducted.

A short pre-screening phone survey was used to assess an individual's meditation experience and determine if they had any medical conditions that may exclude them from study participation. They were asked: if they had any experience in meditation, if so how long this experience was, which kind of meditation it was; if they had or have any specific and serious medical condition and what it is. Medical conditions which could exclude individuals from participation were: ADHD, alcohol or drug addiction, bulimia, anorexia, epilepsy, schizophrenia, bipolar disorder, post-traumatic disorder, serious physical injuries or disabilities. Subjects who were not qualified to take part in the study were excluded.

As mentioned, a weekly reminder in the form of an automatic email to every participant was set; this was done in order to avoid oversights in the weekly self-report task, and to remind the subjects the exact task that had to be done.

Research question

The research questions were voted to investigate the differences between expert and beginning meditators with regard to the subjective experience, in particular self perception and description during and after a course of meditation with repeated sessions (8 times, one per week, for two months). The narrative and descriptive categories used by subjects – beginners and experts – in the description/interpretation of

their own experience were observed. Differences and commonalities were extrapolated, defining the development of the first-person perspective through the accuracy of the verbal description used by the subjects.

Method of Data Collection

The method of data collection is the phenomenological method (Mortari, & Tarozzi 2010; Moustakas, 1994); most of the snapshot reports were collected at the end of the 8 week period, during the final interview, withdrawing the notebooks. Few subjects sent the snapshot report weekly via email. The final interviews were collected during the last meeting which lasted 40 to 60 minutes; during this meeting the compensation was also provided.

Method for the data analysis

Seven steps were followed for the data analysis (Giorgi, 2009; Mortari, & Tarozzi, 2010; Moustakas, 1994):

- a) First reading to get the whole sense of the texts;
- b) Marking meaning/descriptive units;
- c) Collecting meaning and descriptive units in categories;
- d) Abstracting categories in Phenomenological clusters;
- e) Memo and research diary to trace the decisions taken by the researchers;
- f) Intersubjective data analysis done by two different researchers who at the end of the data analysis compared the categories creating shared categories; two supervisors checked all the data analysis process;
- g) Software based data analysis (NVivo8).

Units were identified through their ‘density’ and ‘relevance’ based on the researchers’ perspective (Mortari, & Sità, 2010; Mortari, & Tarozzi, 2010; Tarozzi, 1997); no quantitative analysis were conducted on the data.

The written report of subjects and semi-structured interviews were transcribed into electronic format and analyzed with the aid of the computer software NVivo8; the transcription of audio materials was verbatim; the analysis of such transcribed material was encoded by categories of concepts and units of meaning and grouped by identifying similarities in phenomenological clusters (Giorgi, 2009; Lutz 2002; 2008; Lutz et al. 2002; Moustakas 1994); the coding was performed jointly by two researchers to reduce the biases, to mediate the influence of one individual and refine the labels that were assigned to units of meaning (Mortari, 2007; Moustakas, 1994). The definition of the labels and categories was further supervised by the Italian advisor, Professor Massimiliano Tarozzi, and by the American tutor at Harvard University, Professor Kurt Fischer. The emerging data were constantly compared and revised according to the evolutionary and recursive logic of phenomenological approach (Tarozzi, & Mortari, 2010);

According to the traditional modalities of qualitative and phenomenological research (Kvale, 1996; Mortari, 2007; Tarozzi, 2008), research’s diary and memoing were used to trace the path that the researchers performed during the research process.

Here below you can see how the analysis was conducted from the text to the phenomenological clusters through meaning/descriptive units and categories.

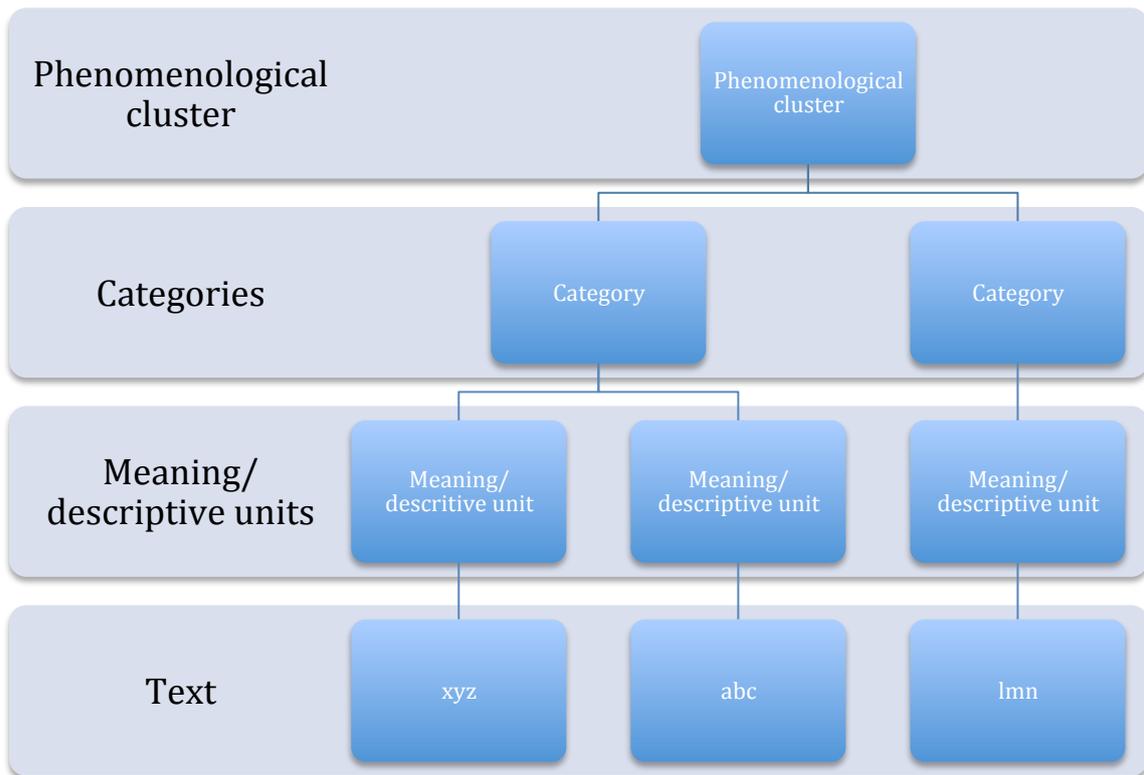


Figure 8 Structure of the text analysis, from the text to the phenomenological cluster. Depending on the complexity of the cluster, there are more or less intermediate steps

3.2.2 Results

	BEGINNERS	EXPERTS
SELF REPORTS	96	80
OPEN ENDED INTERVIEWS	12	10
TIME OF MEDITATION	Afternoon/evening	Morning and evening
DURATION OF MEDITATION SESSION	5/10 mins	30/40 mins
HOW MANY TIME PER DAY	1	2
HOW MANY DAYS PER WEEK	2/3	6/7
WHERE	Meditation school/home	Meditation school/work/home/nature
STYLE OF MEDITATION	Mindfulness/Trascendental (basic level)	Mindfulness/Trascendental/Vipassana/Buddhism/Zen (high level including yoga, tai chi)
FOCUS OF MEDITATION	Breath (rarely words or sentences)	Breath (sometimes ritual words, sentences or images)

Figure 9 Total of self reports and interviews, and data about the meditation practice



Figure 10 Phenomenological clusters and their categories

Different types of conceptual categories and units of meaning have been identified by researchers; among them, as we can see more in detail below, there are categories that are purely descriptive, emotional, cognitive, physical, relating to psycho-physical well-being or enhanced sense of empathy and prosociality, the ability to discriminate between physical states (posture, respiratory rhythm, heart rhythm, physical sensations) and mental states (inner speech, mental distractors, emotions).

Below are indicated the clusters with their categories. Within the categories the meaning/descriptive units are reported separately for beginners and experts, and then some significant sentences or parts of the texts are reported as examples.

Overall awareness

Categories	Beginners' descriptive units	Experts' descriptive units
Awakening	First deep breath; rediscovery	-
Effects lasting	Very short (5 mins or less)	Continuous
Well-being	Lightness; happiness; self- world harmony	Recharge; flow of experience; self-world harmony

Awakening

This is a category that emerged immediately after the first reading of the self-reports, especially the beginners' ones. Indeed, when they start the meditation session, the first impression they often have is to re-discover some physical sensations that are not usually under the light of the mind, and this 'awakening' is very surprising and powerful for them.

I find it difficult to relax my body, and become very conscious of tension in my shoulder (especially the right side) and shoulderblades. I had not noticed this during the day but now that I'm noticing it looks like I discover my body again... I have my body back! 1B1

Effects lasting

This category assembles the descriptive units that indicate that some effects of meditation, as the general well-being, last till after the meditation session itself, for a few minutes. We decided to explore this category further with the open-ended interview after we found few descriptive units in the self reports. Thanks to that we discovered that beginner subjects frequently reported that these effects didn't last for more than approximately 5 minutes. Experts say that thanks to two or three sessions per day they don't usually perceive a break in the effects of meditation; for them it is as if the effects of mediation last all day long.

Here there is an interesting example of a bit longer endurance of the effects after a meditation session. A beginner reports the follow:

One particular morning I transitioned quite well and once again used the birds chirping and my breathing to focus. I felt so much lighter and upon entering the shower, for the first time I was present. I thought of nothing else but the water and the suds and the feeling of the washcloth on my skin. Nothing mind blowing happening, but brilliant!

Of course at some point on the way to work I lost it, but the experience was eye opening for me. You really can meditate on the actions that you are doing. I found that I was a lot more pleasant that day as well. 2B6

Well-being

This category is probably one of the most common among the categories we found and also one of the most common in the literature. Meditation, especially for beginners, seems to have a sort of immediate effect on the psychophysical well-being.

The example:

I focused on my breathing, as instructed, and the thing that astounds me is how rapidly those physical discomforts go away. One moment, they are all you can think about, and all of a sudden, it is just a simple matter of breathing in, breathing out... and the peace of mind and the body that follows immediately is really something. 10B4

Descriptive language

Categories	Beginners	Experts
Precision of language	Vague; narrative; mentioning daily issues; meditation as a break or restore after the hard day	Descriptive; energy recharge
Kind of language	Idealistic/mystical	Concrete; pragmatic; grounded
Spaciousness of mind	Mind is wide, surprise	Mind is wide

As we said in the theoretical part of this thesis, there is a gap between the experience and the description of the experience. The gap is a linguistic gap. Indeed it is not easy to describe an experience for the first time, especially a profound experience as meditation. However, as the phenomenologists point out (Depraz, et al., 2003; Gallagher, & Zahavi, 2008; Tarozzi, & Mortari 2010; Varela, 1996; Varela et al. 1991), the consciousness even in its linguistic dimension is something that can be learnt. This is the difference between experts and beginners. Mindfulness meditation training always includes a verbal debriefing after the meditation session, where participants are asked to describe the mental and physical states during the experience; this procedure, that is exactly what we did in our study, helps subjects to recognize and describe in a better way what happens during the session. We saw in our data that experts are much better

than beginners at these descriptions and below we reported the two categories that represent this difference.

Precision of descriptive language

The precision of descriptive language shows how different subjects are able to capture the details of the meditative experience or how they are vague in doing that. The categories we found especially within the beginner group reveal that they have difficulties in focussing on the actual meditative experience. Please consider that every time they wrote a self report, just after the meditation session, they had to write in the notebook where the research question was clearly indicated as follow: “Please describe as closely as possible the experience you have been through just now as you lived it”. This request is clearly asking about the experience lived just a moment before but we found that beginners usually spoke in a narrative modality, describing the daily issues. Experts, given their training, are much more able to stay tuned on the actual meditative experience describing what happened in a descriptive modality instead of in a narrative one.

Moreover beginners seem to consider the moment they reserve to meditation as a break or restore from daily issues and problems, as the meditation session was, finally, a moment to get away from ‘real’ life or from personal issues; experts, on the other hand, considered the moment dedicated to meditation as a moment to ‘recharge their energy’ but without considering it as an escape from reality. That is why experts are more in a ‘pre-reflective self-consciousness’ mode with regard to meditative experience; this one, indeed, seems to be already included in their lives without a big

gap between normal life and the meditation sessions. For beginners it is exactly the contrary; they consider meditation as something far from ordinary life, something that is separate from their embodied habits.

Here there are two different self reports and they are very good examples of the precision of the language and the details reported by beginners and experts:

Beginner:

'The main role my body had in this experience was to feel the physical changes that occurred during meditation. I could feel the release of tension in my muscles and the expansion of space within my body. It was also important for me to feel the energy in and around my body. It makes it very clear just how connected the body, mind, and spirit really are.'

Expert:

'Sitting. Noticing a certain waking up as soon as I sit. Noticing breath, feeling body, mind slowing down. Settling into seated posture. erect, tall, not stiff, relaxing into my cushion. Feeling the cushion on the backs of my thighs, feet on the floor, feeling the soles of my feet against the carpet. Breath in, soft belly to let breath in. Breathe out. Deep sighing exhale happens on its own. Simple. Not Easy.'

This category is very indicative of the difference between beginner and expert meditators. Indeed it results that beginners more often describe reflexive thoughts compared to experts. Given that the task required to be focused on the actual meditative experience, beginner subjects show a poor ability to stay tuned on the actual experience, to stay focused on only that. It seems that less training of the 'consciousness' leaves more space for the mind to wander around; in this case we can say that a less 'phenomenological mind' means a more 'hermeneutical self', more narrative and

autobiographical prospective. Here there is an example of narrative language by an expert who recognizes that he is not focused as required:

However, while breathing, thoughts kept straying to how I've been largely neglecting my commitment to this study (I think I'm at slightly less than once a week now. I'll step up soon!), and my job. I haven't been making the kind of progress I like on my work project, and in some ways, I hope that meditation can clear my mind enough to make room for new perspectives and interesting insights. Instead, I just find myself not focusing on breathing and trying to turn new angles around in my head. It was harder this evening to silence the general chatter in my mind than usual. 1B4

Kind of language

From the self reports we noted that beginners tend to speak about mystical, spiritual or supernatural events or sensations; this phenomenon could be related to some physical sensation that they are not able to recognize precisely and describe faithfully. This category is not common in the literature; we reported below an example which explains how a subject perceives something in her hands, something like a light, that is probably related to the fact that during meditation the hands can get warmer.

I don't know if it is normal, I think so, I had an impressive experience during this session. I felt something like a light coming out of my hands, my palms and fingers. It's not the first time I feel this strange sensation. 8B6

It was also important for me to feel the energy in and around my body. It makes it very clear just how connected the body, mind, and spirit really are. 2B5

Spaciousness of mind

This is a category that emerged from the data and that has been suggested to me by Varela and colleagues (1991). Indeed Varela and colleagues, even without any specific data to support it, indicated that this metaphor is something that explains well what a subject feels during the meditation. In their own words “Meditators also report experiencing space and spaciousness of mind. A traditional metaphor for this experience is that mind is the sky (a non conceptual background) in which different mental contents, like clouds, arise and subside. Experience of panoramic awareness and of space are natural outgrowths of mindfulness/awareness meditation” (p. 44).

Participants of my study use this metaphor few times and a paradigmatic case is this one (an expert and a beginner):

I felt a space open up in my mind, a vertical and huge space. Inside the space was calm and peace. 2E2

There was also feelings of calm, tranquility, and openness in my mind. At times there were momentary feelings of expansion, of sinking, of clarity. 4B1

Meditation technique

Categories	Beginners	Experts
Internal and external attractors	First and deep breath; words	Breath rhythm; words/ sentences; mental images
Internal and external distractors	Body/posture; heart rhythm; breathe; thoughts; sounds/noise	Physical tiredness; problems with digestion
Self learning/self evaluation	Strategies before or after meditation; improvement along the time	-

Attractors:

The main descriptive unit for beginners within this category is definitely the ‘first breath’; this is something that hadn't appeared in the literature yet but it is quite clear that beginners report the fact that to be and to stay focused on the breath the best ‘attractor’ – that is something that helps to meditate, that makes it easier – is the initial first and breath at the beginning of the meditation session. They also report that when they lose focus the best way to go back to concentration again is to take a big and deep

breath. For experts the attractor is not a single breath but instead it is the breathing rhythm which has to be harmonic, continuous and effortless. A beginner reports:

Upon sitting, I decided to not use the candles as I had last time. I focused on my breath though as I usually do, but jumped right into the deeper ones. I usually start with shallow ones in order to ease my way into my quiet time, but as things have been so crazy around the house I knew that deeper ones might be more effective. It's almost as if for a brief second, you can feel everything just slow down in each breath. It is inevitable; no escaping it. As tense as I have been, the minute I'd breathe, it was enough for me to calm down a bit and just sit. Just stop.
2B5

A beginner on the breath as an attractor:

The basic practice of returning to the breath was helpful as a focus. It helped me to anchor in the present moment and to give me a steady centering tool. Often I would get pulled off, but the reminder to come back to the breath was relaxing in and of itself. 7B5

An example of attractor for experts is the pray or words or ritual sentences as follow:

When I began the formal sit, I started with Metta phrases about the other meditators in the room. I said things like "May all the people in this room be completely at peace, be completely at ease, be still..." I kept repeating the phrases for a few minutes. The voice was soft and a little distant, fading more and more in the background. Then I focused on myself and said a few compassionate phrases to myself--reflecting on how hard it is to be a human being, how hard it is to have a conditioned mind like I do--full of fear, lust, and confusion. I offered myself

forgiveness, patience, and kindness. My concentration was very strong, centered, one-pointed. The words came easily. 2E3

Interestingly, an attractor which is believed to be a distractor for other subjects, for a beginner become important to help stay grounded on the meditative experience: I'm talking about auditory stimuli as, in this case, the birds chirping:

I used the sounds of the birds chirping to help ground myself. They're far enough in the distance to not be a nuisance but close enough for me to focus on that sound. I integrated my breath with the chirping and felt A LOT lighter. Though I was in my room, it felt just as if I was in a vast meadow. 11B5

Internal and external distractors

About the distractor: some studies speak about the 'non-reactivity' category for describing the ability of experts to not get distracted by external or internal stimuli (Dobkin, 2008; Kerr, not published; Mason, & Hargreaves, 2001). I agree that this category catches the sense of some descriptive units but we preferred to use the category 'distractors' because it is the closest one to the subjects' reports. As you can see in the table there are some different distractors but one that probably was not considered enough before is the posture and the micro-movements that have to be done because it is very difficult, for beginners, to find the right position for meditating. Then noise and sounds in the environment are distracting also; for 2 beginners also the fact to perceive their heart rhythm and breathe rhythm was annoying.

Here there is an example of a beginner who spoke about the improvement she had after the meditation course about the control on distractors:

I seem to have less reactive fear about the sensations. Before I might think a certain sensation was something dangerous, and now I can more easily watch it arise and pass away and know that most sensations are impermanent. Those that stay (like a leg injury) then would need more attention. It helped me sort out which were serious and which were passing. 6B8

Self learning/self evaluation

In some cases, especially within the beginners' group, subjects report to learn some strategies, tricks or methods to improve the quality of their meditative experience or to gain the self evaluation skill to evaluate what is right and wrong in the meditative session. They usually report on learning how to do meditation better as, for example, doing yoga or tai chi before or after the meditation sessions. Here there is a clear example:

So in order to do that, I think for the next week I will stretch first. I think this process has really driven home to me why the movements in yoga is so connected with meditation. It definitely eases the process in trying to focus and bringing yourself to a much more receptive state.

I have been averaging out to a half hour for meditating and I think that bracket is good for me for now. Once I start stretching first, though, I think I may be able to do even longer. 3B5

Here there are two examples of a sort of self-evaluation about the improvements made (or not) by beginners:

This week was especially fulfilling in meditation. It has become A LOT easier for me to focus. I'm not sure if it's practice or with all that's happened I have just finally learned to release control. (...) I have made

stretching a bit before meditating a routine and now that I have been able to "jump in" a bit faster, I have not needed as much time as before.

2B6

I don't think I've quite hit that level of meditative ability to have any success outside of quiet, personal environments. It is a pity! 9B7

Difficulties and fatigue

Categories	Beginners	Experts
Find and keep posture	Various micro-movement and postural adjustments	-
Find and keep mental focus	Mental images; inner speech; fake presence	-
Sore or pain	Difficulty to maintain the posture; back and legs aching	Physical tiredness

Find and maintain the position and posture

Also this category occurs more often within the beginners group and refers to the bodily dimension of the meditative session. The problem to find the right position, or to maintain the same position during the meditative session is quite an important problem and the subjects explicitly report that. To fail in finding the right and comfortable position prevents finding the right mental focus on the task as well.

An example of the problems that beginners have to face is reported below; they are very often related to the back or to the position of the legs:

At first, choose to sit cross-legged on a soft surface, but find it too hard to settle into, and use the hardwood floor instead. I have to find the most comfortable position otherwise I can't even start to meditate
1B6

Find and maintain the mental focus

Here you can see some examples of the difficulty to keep the concentration on the task, that is the breath. We have to consider that a task of this type – focus on the breath – is totally normal for people who do meditation often but it is not usual within our Western culture. Beginners who have to face that for the first time find some problems that I have summarized below:

This week was EXTREMELY difficult for me to focus. I could barely find time to sit and think quietly and when I actually did, I had so much stress going on that letting my thoughts "float away" seemed impossible. 10B4

It was rough. I started with great intentions, but it took me about fifteen minutes to remember that I was supposed to be meditating.
2B1

I tried to stay focused, but that only turned into me being frustrated with not focusing. 12B2

Prior to these sessions, I had meditated but I don't think I gave myself enough time to relinquish things that happened in my life. I was sitting and I did try my best to focus on my breath, but for someone like me who tends to hold on to the issues of the day, I do need to give myself the time I need to "give away" my issues to a higher power before even attempting to focus on meditating completely. And after realizing that this week, I think I appreciate it even more. 2B4

The fake presence is when subjects think they are present but they are just thinking about being present. Here there is an example, which is a sentence that is also included in another category:

It was rough. I started with great intentions, but it took me about fifteen minutes to remember that I was supposed to be meditating.
2B1

Sore or pain

This is another category which doesn't appear in other studies, both quantitative and qualitative. From a didactical point of view it is important to consider what are the main problems that prevent to learn something; in this case we have to emphasize that subjects – again beginners – some times report problems deriving from sore or pain,

specially due to the physical position. It seems truly necessary to take into consideration a category like this one to improve the didactics of meditation and to help participants to use coping strategies.

Here there is an example:

Unlike the last time I tried this, I wasn't very conscious of too much tension in my body. (That's a good thing, I think!) However, I had trouble ignoring physical annoying phenomena -- my right ear itched, my neck itched, my legs... were asleep, and this all detracted from my ability to focus. (As a side note, post-session, I am now itchier than when I began.) 9B3

Sometimes I don't know if meditating makes my body relaxed or totally tired. I only know that the sitting position is really sore, and also keep the back straight is not easy at all. 7B2

Embodied cognition

Categories	Beginners	Experts
Emotion recognition	Disappointment or angriness because of daily issues; positive emotions	-

Body scan	Macro areas (head; back; abdomen; legs; inability to identify thoracic diaphragm)	Micro areas (eyelids, lips and chin release, throat, back leg, the foot, right / left, reducing breathing rate)
Body mereology	Body as a whole	Body as home; harmony

Emotion recognition

Despite categories related to the wide topic of emotions are often used for investigating meditative training, we have to say that this category – emotion recognition – emerged rarely and doesn't seem to have an important role, at least in our data analysis process. For sure we can say that beginners have a general consideration of the emotion perception and description; indeed they speak about general and vague categories as happiness or sadness, which are often related to the daily issues as we have already seen in a previous category. With regard to experts we have to say that we didn't find significant descriptive units for this category.

Body scan

In this category the difference between the expertise of beginners and experts emerges very clearly. In fact, experts report more often and in a more meaningful way how they perceive their bodies during meditation. Experts definitely have more precise and detailed body perceptions and beginners are usually more vague and generic.

It seems interesting to notice that the face and the muscles of the face are often recalled by experts, as the eyebrows, the lips or the chin. As you can see in the table beginners speak more about macro bodily area like the head, the chest, the legs and so on.

Here we have an example by an expert:

I could feel my face relaxing and whenever I lost it, my eyebrows would tighten and my head would feel different. I like that I am a lot more in tune with my body and how it feels when I am in a proper state of meditation. It is literally as if a weight has been lifted...specifically from my face. I would like to get that feeling from my whole body.

To see another significant comparison, please see the example I reported for the ‘precision of descriptive language’ category. There you can see how an expert describes much more precisely the body perception, speaking about micro bodily areas whereas the beginner is generally speaking about macro bodily areas.

Body mereology

Body mereology means that one feels as a whole, unique and harmonic being. This category appears to have the same relevance for experts and beginners, while the body scan is definitely better for experts. This could suggest that perceiving parts of the body is much more difficult than perceiving the body as a whole.

When I meditate I always have the same feeling: I am my body. I mean, I feel like if my mind and my body are the same thing, like if my

body has no parts, I mean, it has different parts but they are tied together. This is a great feeling! 8B7

Being in the space

Categories	Beginners	Experts
Spatial perception	Peri-personal space; body volume	Self-word harmony (smoothness); movement as a flow
Action execution and control	Grasping; walking; action smooth, fluid, calm and precise	-

This category is a good example to explain how few and rare but dense data emerged by the snapshots. This data was then deepened with the final semi-structured interview. Indeed I noticed that some subjects described in the self reports how the meditative experience was changing their subjective perception of the space and the ‘phenomenological perspective on being in the space’ (Merleau-Ponty, 2002). Then I decided to further investigate these clues by asking how and when subjects perceived a

change in the afterward experience and we found two main categories within the ‘being in the space’ cluster.

Spatial perception and body volume

For us this is another interesting category: beginners report to perceive some differences between the pre-meditation space perception and the post-meditation space perception. Investigating these claims more through the semi-structured interviews we found that subjects describe changes in the *peri-personal space* – the space all around the body that can be reached extending the limbs – and body volume; for example, some of them reported that their chest appeared bigger than before the meditation session; some others spoke about the entire body as bigger than before, and so on.

About the volume of the body a beginners said:

The main role my body had in this experience was to feel the physical changes that occurred during meditation. I could feel the release of tension in my muscles and the expansion of space within my body. 2B7

Another one:

The body became relaxed. At times it buzzed, tingled, felt like it was expanding like a balloon, and then shrinking. The hips opened up. 10B4

Action execution and control

Also this category has been deepened more through the final interviews. Few subjects, in the self reports, said that they perceived their actions much more smoothly and precise after meditation. For experts it seems to be the same, in the opposite manner; if they didn't meditate once for any reason they felt less smooth and harmonic in their movements. Also this category doesn't appear in any study within the dedicated literature, both in qualitative and quantitative literature.

The body plays a huge role. At first, during the initial deep breath and few minutes, awareness of tension in the body is pronounced. After watching the breath for 5-10 minutes, my body was more relaxed and seemed to stay that way for several hours afterwards. Probably less. However I clearly perceive myself moving smoothly after each meditation session. 11B5

Meaning attribution

Categories	Beginners	Experts
General sense of meditative experience	Self rediscovery; will to live; happiness; questions about life	Psychophysical well being; recharge; personal hygiene

Pedagogical sense of meditative experience	Experience that change immediate consideration of the life; will to improve the life; will to continue the meditative practice	Self development; spiritual growth
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General sense of meditative experience

This category is one of the most notable in the self reports and in the interviews also. Beginners often describe the meditative experience has something that makes them happier because it helps them to look at the world in a different way. Also the self discovery, even though it could be obvious, is a very import category for beginners. Experts, instead, speak more of meditation as an energy recharger, or a personal daily hygiene.

Here there is an example of ‘question about life’ category, emerged by a beginner’s self report.

Reflecting on Jimmy's life & death led me to considering my own life and eventual death. Am I living well? Am I happy? Is this how I want to be spending my precious time? What else would I like to do with my remaining time as a human being?

What is the nature of my relationship with all of the people in my life? What will they remember about me? What will be my continuation? Which of my thoughts, words, and actions will people remember and find some value in?

What is the essence of Jimmy's life? And of mine? 3B7

Here there is another example of the general sense of the meditative experience related to the well-being for everyone.

Meditation is a tool that is not used as frequently as it should be, but that would benefit a lot of people in many different areas of their lives. If more people could release stress in their bodies and minds, I think their overall health would greatly improve! 2B8

Pedagogical sense of meditative experience

The effect of a meditation course on beginners seems to be very deep, at least soon after the course. They report that a course like this one moves them toward the will to improve their life, even repeating the meditative experience. What should be investigated is whether subjects truly go on doing meditation or not, given that people easily drop out from meditation courses and that meditative practice is not easy.

Here there is an example for this category by an expert.

I think that meditation is really something that can improve the human being. We are so far from the full development of our minds and brains. They should take meditation courses in the schools. 5E8

3.2.3 Discussion

The main results that appear to be important for the discussion are as follows:

a) Grounded in to the experience

Experts seem to be more grounded in to the experience than beginners; indeed beginners use less descriptive language and more of a narrative one, describing not only the actual meditative experience but also some daily issues. The mystical language, then, is indicative for beginners: it probably means that some particular physical effects of meditation, as the warm hands after few minutes of meditation, cannot be properly recognized and linguistically expressed by beginners due to a lack of experience. Then, they tend to use an idealistic language while experts are more detailed about the experience, both bodily and mentally.

b) First and deep breath vs. rhythmic breath

There is a fundamental role of the first breath for the ‘awakening’, as reported by beginners. This is a point that has never revealed by other studies but the main attractor for beginners is the first and, specially, deep breath. For experts, instead, the rhythm appears to be more important.

c) Body scan

Body scan is a category that is relevant for both groups; however for experts it is much more detailed. The difference consists of the degree of precision in using the language to describe the bodily experience. Experts are more precise and detailed when speaking about bodily sensations or perception: they refer to what we call micro bodily areas whereas beginners refer to macro bodily areas.

d) Body mereology

Body mereology is a category that is present in both groups, whereas, as we saw, the body scan is a more important category for experts. This fact allows to think that perceiving the body as a whole is easier than perceiving the single parts of it.

e) Non-reactivity in expert vs. beginners

This category is well recognized within the literature and it emerged in our study as well. Mindfulness meditation is a technique based on the fact that the subject can develop the ability to remain into the flow of consciousness without getting distracted by any kind of stimuli. However, though this is true for experts, it is not for beginners. Indeed they get easily distracted by internal stimuli (heart rhythm, mental images, inner speech, fake presence and so on) and external stimuli (sounds, noise, itching and so on).

f) Switch from the pre-reflective self-consciousness to the reflective self-consciousness due to the proprioceptive experience

From our data it seems that experts have a more embodied perception of meditative practice; that means that they don't consider meditation as an escape from reality but it is a daily activity instead. For experts the proprioceptive experience is something that is completely embodied in daily life, but for beginners it is something that still has to be brought into their ordinary lives. This marks the difference between a well-developed pre-reflective self-consciousness and a reflective self-consciousness.

g) Difficulties in learning the meditative technique;

This category has to do with the didactical structure and program of a meditative course, and we can say that so far it has not been well considered yet within literature. Subjects, especially beginners, report some problems, difficulties, even sore, during or after the meditative session. Sore and pain can also easily distract subjects from the task. This is something that has to be taken more into consideration when we investigate

meditation; indeed the difficulties or problem related to meditation are not investigated as well as the good and healthy effects of it. With this research we want to stress this point more.

h) The whole sense of meditation

For both beginners and experts meditation has a deep ethical and pedagogical value in their personal development. We saw that meditation can help to arouse important questions about life, what we named pedagogical and ethical perspective, and it leads subjects to the will to improve their lifestyle. Meditation seems to induce subjects, both beginners and experts, to a high consideration of the importance of taking care of themselves; as Mortari says, to take care of ones self is an essential pedagogical value and it induces an attitude voted to an informal sort of continuing education, that is the intention to always improve and enrich the life (Mortari, 2002). Form this point of view meditation and education pursue the same goals.

Limits of the study

The problem of qualitative studies is the validation of the results (Petitmengin 2006; Petitmengin, & Bitbol, 2009; Tarozzi, 1997; 2008); given that statistical methods are not used in qualitative research, usually the comparison with other similar studies is done as term for validation.

Validation requires two steps:

- Comparison with other similar researches (Kerr, not published; Dobkin, 2008; Mason, & Hargreaves, 2001);
- Stringency of the procedure (Tarozzi, 2008).

The literature about qualitative studies for investigating the FPP in meditation is not well developed yet, even though it seems indispensable to offer a qualitative data set about it, both for educational, psychological or medical aims. This study showed the difference and the similarities of descriptive and meaning units used by beginning and expert meditators. More qualitative studies are needed both to validate my research and to enlarge the qualitative data on meditation. A further qualitative research with the same design as the one I proposed here will be shortly conducted in Italy and it will be a first step for a comparison analysis.

4. Conclusions

4.1 *The learning mind: meditation as education*

The development of awareness is a fundamental pedagogical theme and it is the main goal of meditation as well: that is why we can speak of meditation as education. What we have to learn when we do mindfulness meditation is nothing else than being able to use our awareness to deepen our presence in the world. It is the embodied presence – embodied mind – which gets improved by meditation; it is a sort of cognitive posture that had to be educated, a new perspective on the world grounded in the lived experience (Mortari, 2002).

In the preface to *Phenomenology of Perception* Merleau-Ponty stated that “The whole universe of science is built upon the world as directly experienced, and if we want to subject science itself to rigorous scrutiny and arrive at a precise assessment of its meaning and scope, we must begin by reawakening *the basic experience of the world of which science is a second-order expression*” (Merleau-Ponty, 2002, p. 9).

Phenomenology makes a distinction between two different attitudes, the natural and the phenomenological (Zahavi, 2005). In our everyday dealing with the world, we accept without questioning it that there is a reality that we and other people are part of, and that this reality exists independently of us. This tacit, realistic belief – without which our ordinary dealings with the world would be disrupted by an endless set of questions – is called the natural attitude. According to phenomenologists, science also subscribes to the natural attitude, because it too takes for granted the existence of a

world, which is thought to be independent of mind, experience, and theory (Gallagher, & Zahavi, 2008).

Phenomenologists, on the other hand, should be “aroused by and immediately sensitive to the completely enigmatic character of what for sound common sense, is without question and self explanatory” (Heidegger, 1976, pp. 23-24, as quoted by Gallagher & Zahavi, 2008, p. 22). The phenomenological attitude involves questioning the unquestioned assumptions of the natural attitude, i.e. to see the enigmatic in the self-explanatory. The question then becomes how this attitude can be taken up. Meditation, as well as phenomenology, is a method for opening the eye to a new possibility to see the world in its own way to appear to us. The first step should be the discovery of the wandering/disconnected mind:

“Eventually, it begins to dawn on the meditators that there is an actual difference between being present and not being present. In daily life they also begin to have instants of waking up to the realization that they are not present and of flashing back for a moment to be present - not to the breath, in this case, but to whatever is going on. Thus the first great discovery of mindfulness meditation tends to be not some encompassing insight into the nature of mind but the piercing realization of just how disconnected humans normally are from their very experience (Varela, et al., 1991, p. 25).

This is the proper meaning of the mindfulness meditation – and of phenomenology as well – that is to develop the awareness not only about the ordinary objects or the reality in general but also about one’s own mind, one’s own cognitive posture (Mortari, 2002; 2003).

The life of the mind is a flowing life, it is a fresh, pure and clean water that flows underground: we do not hear it but we do feel it, we do not see it but we know it

is there. The interiority is not seen, it is experienced. And the awareness is nothing more than paying attention and giving voice to the life of the mind, avoiding the abstract attitude so common in our ordinary life. As Varela and colleagues remark (1991, pp. 25-26):

“From the point of view of mindfulness/awareness meditation, humans are not trapped forever in the abstract attitude. The dissociation of mind from body, of awareness from experience, is the result of habit, and these habits can be broken. As the meditator again and interrupts the flow of discursive thought and returns to be present with his breath or daily activity, there is a gradual taming of the mind’s restlessness. One begins to be able to see the restlessness as such and to become patient with it, rather than becoming automatically lost in it. Eventually meditators report periods of a more panoramic perspective. This is called awareness.

Also Demetrio (2000, p. 112) says that “L’interiorità non è né contenuto, né contenitore: è atto mentale, è procedimento intenzionale che si interroga su questa sua presenza, che dismette, e definitivamente, ogni inseguimento della sua essenza”.

Through meditation, expert meditators seem to reach a cognitive maturity, which reflects the ability to calm the mind, to live a state of rest and control on the flow of consciousness, whereas the beginning meditators are still prey of a random and chaotic flow of consciousness.

The crucial point of this cognitive maturity seems to be the ability to keep the mind focused on its own movement within the ongoing experience, a sort of control of dynamic nature of the mind without reducing the dynamism but on the other hand, being aware of it and remaining to it in close contact with the reality of the experience

avoiding mental distractors. As Varela and colleagues suggest (Varela, et al., 1999, p. 26),

“As all these habits are cut through and one learns an attitude of letting go, the mind’s natural characteristic of knowing itself and reflecting its own experience can shine forth. This is the beginning of wisdom or maturity (prajña). It is important to realize that such maturity does not mean assuming the abstract attitude. As Buddhist teachers often point out, knowledge, in the sense of prajña, is not knowledge about anything. There is no abstract knower of an experience that is separate from the experience itself. Buddhist teachers often talk of becoming one with one’s experience”.

4.2 Qualitative method and the study of consciousness

The qualitative research on meditation is not well developed yet. Even the quantitative one, though it has reached more results so far, is in its inception for what concerns self perception in meditation. We definitely need to further explore this topic, especially its educational values and effect. Starting from the study I conducted, I want to stress the role and the importance of qualitative methods for investigating the first person perspective and phenomenal consciousness; I also want to remark on the importance of discussing further the role of qualitative methods for the cognitive sciences.

There are three points that emerge from my study:

- a) FPP in meditation: as I said, there are no studies about the FPP in meditation designed as the one I conducted, with a special focus on the pristine experience.

This is something that needs to be further explored. However, we can say that experts meditators are privileged subjects to explore FPP since they are trained to deal with state of consciousness; on the other hand the comparison with beginners is definitely interesting because it allows us to see how meditation training changes the FPP. We also need to consider that the comparison between two different groups is not done very often in the qualitative research. That is why I consider this strategy quite innovative and interesting.

- b) FPP: descriptive data vs. reflective data. As we saw the procedure to investigate and obtain descriptive data is more useful for studying the pristine experience and the embodied consciousness; the reflective data obtained through the interviews, on the contrary, are more useful for studying the meaning attribution and the sense making to lived experience. In education and especially in qualitative research literature the reflective data and the investigation about the self are much more common than the descriptive data. I think we need to open a debate about the descriptive data within qualitative research approach.
- c) Qualitative and quantitative research approaches. These two different approaches have always been in conflict since their inception. Recently some steps in the direction of a more respectful consideration and a closer collaboration are been made (Dawson, et al., 2006). There is also a new research approach called ‘mix-methods’, which takes advantage of both methodologies. In the case of my study I want to point out that a ‘bottom-up’ research lets categories that are not possible to see otherwise emerge. Speaking about meditation, we know that there are some questionnaires for analyzing awareness and these questionnaires have some subscales. The problem, from a qualitative point of view, is that the questionnaires require a pre-established

framework for the interpretation of the concept of awareness, or others, and that lets only the categories already provided within that framework emerge. The qualitative approach, instead, allows the subjects to create their own description and interpretation about every single phenomena and this can make some new or different categories emerge that are not present in the questionnaires. The best example for that is the one related to the ‘Embodied cognition’ and ‘Being in the space’ clusters we found in our data. If we consider one of the most used and well considered questionnaire, the 5 Facet Mindfulness Questionnaire, we can see that it has 5 different subscales: observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience. As you can see on five dimensions only one is dedicated to the bodily aspect of the awareness and, moreover, it has to do only with the action not with the bodily perception. With the qualitative data we found not only more and different categories but also more detailed ones, as you can see from the ‘body scan’ and ‘body mereology’ categories.

Thus, the study of consciousness, that is the way in which the subject lives and interprets his own experience, is quite a ‘hot’ topic nowadays, even in cognitive science (Petitmengin, 2006; Petitmengin, et al. 2009; Overgaard, et al, 2008). But the experience is not fixed once forever; it changes through the new experience that a person acquires and, when it is possible, through the intentional and pedagogical description/interpretation of that experience (Depraz, et al. 2003; Mortari, 2003). We mustn't forget that qualitative methods are always transformative methods because while investigating the subjective experience the subject himself gains more awareness

about it. As for the educational value of the qualitative research on subjective experience, Varela and Shear (1999, p. 4) say that:

“...experience, in human practices is the privileged entry point for change mediated by professional interventions of all kinds, such as education and learning, sports training, and psychotherapy. In all these domains there is abundant evidence not only that the realm of experience is essential for human activity and life involving the use of one’s own mind, but that the experiential domain can be explored, as we see in transformations mediated by specific practices and human interactions in prescribed settings (training course, sports coaching, psychotherapeutic sessions). Again, we need to put into question the assumption that the demarcation line between the strictly subpersonal and conscious are fixed and given once and forever. First-person methodologies include as a fundamental dimension the claim that this is a movable line, and much can be done with the intermediate zone. Exploring the pre-reflexive represents a rich and largely unexplored source of information and data with dramatic consequences.”

Finally I want to remark that the method we used for this study has some particularities that make it original with respect to the standard qualitative methods, both phenomenological and of other traditions. Here I want to list some differences that require further investigations within the qualitative research approach:

- 1) Comparison between groups;
- 2) Standardized samples;
- 3) Experimental/blocked design;
- 4) Repeated experiences and repeated description of the experiences;

4.3 Future perspectives

The various meditative practices available today are catching on in Western society with even greater force, mainly in informal contexts like extra-curricular and extra-corporate training (evening classes, retreats, associations and groups). It is important to note that an increasing number of schools, universities and companies are offering students and employees various kinds of meditation courses. The study of the educational value of courses offered to the public by the various agencies involved, formal and informal, appears to be of some interest from a pedagogical point of view.

The study of training processes underlying meditation and mindfulness practice has become the subject of research only recently, not widely, and mainly in relation to children and adolescents. As I showed earlier, additional studies can be found in the anthropological and psychological sciences and neuroscience. From an educational point of view, however, the most important indications for further studies involve the necessity to investigate more the subjective pristine experience as I did in my study; then, further investigations about the self and meditation within the educational field are needed. Also the didactical structure of the meditation courses have to be more investigated, especially the design of meditation teaching methods and the evaluation of meditation courses – for all ages, included adults – that is their pedagogical fallout.

The most obvious applications of meditation relate to the pedagogy of the body and to meditation instruction, particularly as it enjoys crescent popularity in the West. Such practices can be included in the general categories of ‘outdoor training’ and ‘experiential learning’ which have come to play primary roles in the new landscape of education sciences. Some phenomenological research methods seem to be useful for the study of the ‘first person’ perspective and above all, of the changes in that perspective during and following important bodily experiences, such as those experienced in

meditation practice. All these methods, including the ‘Snapshot Method’ which I broached in this thesis, have rarely been implied in the realm of education, of consciousness or its transformative dimension. I believe it is time for a shift to the body dimension in phenomenological research as well as in the mixed field between education and cognitive sciences, especially with regards to experiential education and bodily experience in general, and meditation practices in particular.

Some further studies are needed in the future, in particular:

- 1) Replication of the same design to make a comparison for the validation of the study I conducted and have presented in this thesis;
- 2) Comparison with a similar study to realize in Italy;
- 3) More investigation about the bodily dimension of meditation through qualitative research methods, including the pristine subjective experience;
- 4) A pedagogical investigation of the meditation schools, courses, and programs. More precisely the didactic and teaching practices and policies of meditation have to be the object of further studies.

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Attachments

1. Open-ended questions. Semi-structured interview.

- General experience description dimension: How would you describe the meditation experience you have been through in these weeks? Would you like to repeat it, change it or just never do it again?

- General experience description dimension: What are the most important benefits or problems you have experienced during this experience?

- Feeling/emotions dimension: What were the main feeling and/or emotions you had during the relaxation?

- Distractors/attractors dimension: Did you have any problem to relax or to focus on your breathe? Did you experience any mental and/or physical obstacles in being relaxed and focused on your breathe? Did anything help you in being relaxed and focused on your breathe? Could you list and describe them?

- Reflective and metacognitive dimension: How was describing the meditative experience? Did you have any difficulty describing through words your inner experience? Do you think that reflecting about the experience changed the experience itself? Do you think that describing the meditative experience has been useful and helpful for you? In which way?

Bodily dimension: How would you describe the role of your body in this experience? Did you notice any change in your bodily perception during and after the relaxation experience (immediately after, few hours after, and now)?

- General experience description dimension: Do you have any other comment you would like to say?

2. Instructions

1. Meditation

Please find a comfortable position, close your eyes, take a long and deep breath. Then relax your body, breathe slowly and naturally. Try to be focused on your breath.

2. Short written self-report

Please describe as closely as possible the experience you have been through just now as you lived it.

The writing of the self-report should take less than 5 minutes. You can write it on the notebook or directly in electronic format and send it to the investigator by email (denis.francesconi@unitn.it).

ID#: _____

Date _____

5-FACTOR Mindfulness Questionnaire

Please rate each of the following statements using the scale provided.

Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
never or very rarely true	rarely true	sometimes true	often true	very often or always true

- _____ 1. When I'm walking, I deliberately notice the sensations of my body moving.
- _____ 2. I'm good at finding words to describe my feelings.
- _____ 3. I criticize myself for having irrational or inappropriate emotions.
- _____ 4. I perceive my feelings and emotions without having to react to them.
- _____ 5. When I do things, my mind wanders off and I'm easily distracted.
- _____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.
- _____ 7. I can easily put my beliefs, opinions, and expectations into words.
- _____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
- _____ 9. I watch my feelings without getting lost in them.
- _____ 10. I tell myself I shouldn't be feeling the way I'm feeling.
- _____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
- _____ 12. It's hard for me to find the words to describe what I'm thinking.
- _____ 13. I am easily distracted.
- _____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.

_____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.

PLEASE TURN OVER ,

1	2	3	4	5
never or very rarely true	rarely true	sometimes true	often true	very often or always true

_____ 16. I have trouble thinking of the right words to express how I feel about things

_____ 17. I make judgments about whether my thoughts are good or bad.

_____ 18. I find it difficult to stay focused on what's happening in the present.

_____ 19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.

_____ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.

_____ 21. In difficult situations, I can pause without immediately reacting.

_____ 22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.

_____ 23. It seems I am "running on automatic" without much awareness of what I'm doing.

_____ 24. When I have distressing thoughts or images, I feel calm soon after.

_____ 25. I tell myself that I shouldn't be thinking the way I'm thinking.

_____ 26. I notice the smells and aromas of things.

_____ 27. Even when I'm feeling terribly upset, I can find a way to put it into words.

_____ 28. I rush through activities without being really attentive to them.

_____ 29. When I have distressing thoughts or images I am able just to notice them without reacting.

_____ 30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.

PLEASE TURN OVER

1	2	3	4	5
never or very rarely true	rarely true	sometimes true	often true	very often or always true

_____ 31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.

_____ 32. My natural tendency is to put my experiences into words.

_____ 33. When I have distressing thoughts or images, I just notice them and let them go.

_____ 34. I do jobs or tasks automatically without being aware of what I'm doing.

_____ 35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.

_____ 36. I pay attention to how my emotions affect my thoughts and behavior.

_____ 37. I can usually describe how I feel at the moment in considerable detail.

_____ 38. I find myself doing things without paying attention.

_____ 39. I disapprove of myself when I have irrational ideas.