



## Moving Laboratory

Neurophenomenological approaches to Embodiment and Architecture

**Anna-Maija Tuunanen**

Tampere University of Technology

Department of Architecture

[anna-maija.tuunanen@tut.fi](mailto:anna-maija.tuunanen@tut.fi)

### Abstract

How to access and gain knowledge of the embodied experience in architecture? Although phenomenology is significant to this field of architectural research, the surveys primarily seem more theoretical, than opening perspectives and methods to a subjective access. However neurophenomenology, which was first introduced by Francisco Varela (1996) appears to provide a theoretical framework and methods to access the first-person experience. The study examines the lived, subjective experience. This paper introduces the background, some of the key concepts and the Gesture of Awareness presented by Depraz, Varela and Vermersch (1999), which is applied in the Moving Laboratories. By directing attention to proprioception the aim is gradually to turn the attention inwards to the personal experience. Moving Laboratories are part of my PhD research, The Experience of Invisible, which is underway.

Keywords:

embodiment, proprioception, gesture of awareness, intuition, neurophenomenology

### Introduction

In recent years there has arisen a growing interest among architects and neuroscientists about, how architecture and environment affect our emotions and brain. If we would understand better how emotions, consciousness and experience of architecture are linked, it could affect our approach in designing the physical environment more wisely. In this context the human body, senses and emotions, have an essential role, as Harry Mallgrave has pointed out:

*But today neuroscientists are reminding us that the one-eighth of an inch mantle of "gray matter" that abuts the inner circumference of the skull is but a small part of a much larger neurological and visceral biological operation that is driven internally and externally from below—that is, by sensory-emotive activity as well as by its own spontaneous rules of engagement. This old, but at the same time new, realization holds a very important lesson for designers. Architects may like to rationalize the variables of design, but people largely perceive buildings emotionally through the senses.*

(Mallgrave 2010, 188)

This article introduces an approach on how to increase the awareness of the embodiment in architecture. My focus is on the starting points, background motivation and some of the methods, which are applied in Moving Laboratories. This article is related to my PhD research, The Experience of Invisible.

*If we would understand better how emotions, consciousness and experience of architecture are linked, it could affect our approach in designing the physical environment more wisely.*



**Figure 1.**  
Moving Laboratories in Kaleva church. The day consists of different kind of sessions.

In Moving Laboratories the place of the research is one's own body. The attention is directed first to the movement; to the muscular level and to the sensorimotor reflections caused by the experiences. Although the perceptions through other senses compose the content of the survey as well, the role of proprioception and kinesthesia; concentration to the bodily positions and bodily movements connected to spaces becomes essential. As Mark Johnson has described: "Attention to bodily movement is thus one the keys to understanding how things and experiences become meaningful to organisms like us via our sensorimotor capacities" (Johnson 2007, 19).

The navigation in the spaces by directing the attention to proprioception, the aim is to gradually turn the view inside, to one's own experience. The key is to stay with the body movement and register the sensorymotor reflections caused by the interaction with the spaces.

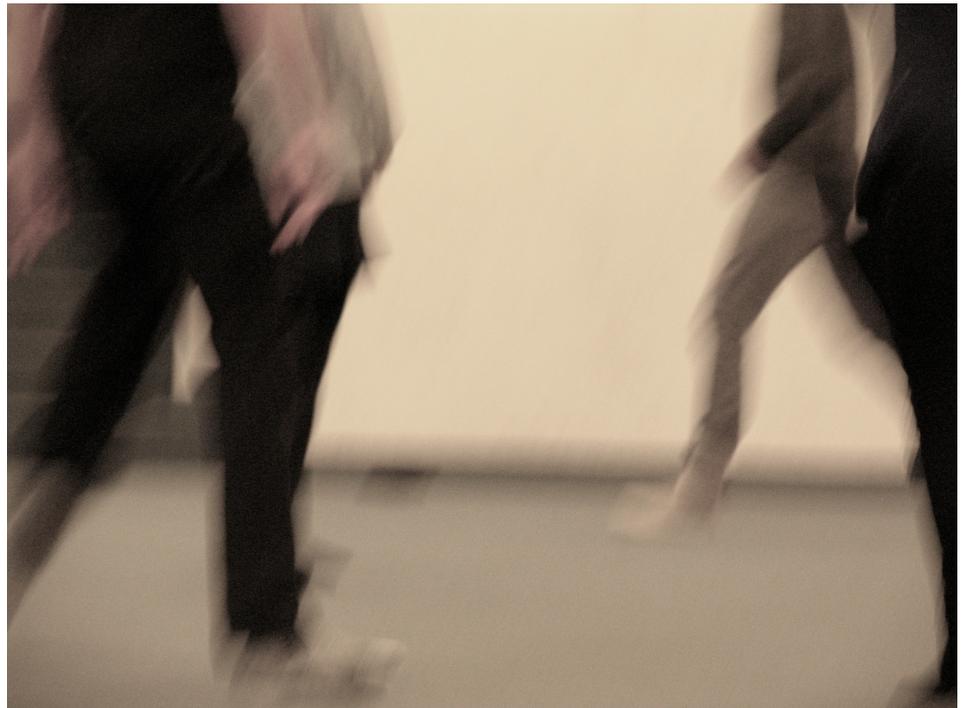
In Moving Laboratories (Figure 1.) the Gesture of Awareness, presented by Natalie Depraz, Francisco Varela and Pierre Vermersch (1999) is applied in various ways in accessing the first-person experience in architecture. The First-person refers here to a subjective experience. "Experience is always that which a singular subject is subjected to at any given time and place, that to which s/he has access 'in the first-person' " (Depraz et al. 2003, 2). As Depraz, Varela and Vermersch emphasized the practical aspect, gaining knowledge by learning skills related to first- person knowledge, this becomes as well the main objective of the Moving Laboratories.

## Body as the foundation

Our body constitutes the foundation of how we are connected to the world, like Maurice Merleau-Ponty put it; "The body is our general medium for having a world" (Merleau-Ponty 1962,169). Through our body, with our senses we experience the world around us. The human body and its measurements guide the spatial requirements in architecture. However, I argue that we need to acquire more knowledge both of the biological basis of the body as well as about the experiential character. This knowledge can open new understanding about, how our bodies connect with spaces, how we behave on an intuitive level. Surely designers use intuition. In Moving Laboratories however the aim is to apply intentional methods to enhance the awareness of embodiment and architecture, learn to become more sensitive. This field of knowledge is personal and some might critique the meaning of it. But to the creative processes this kind of personal ability linked to intuition is something we can lean on, something we know is true for us. So I claim, that by acquiring skills to become more sensitive towards body-space relation by sharpening our "inner lenses" can equip designers with new understanding.

Since neurophenomenology has its roots in phenomenology, it is good to start from there. Merleau-Ponty brought the concepts of movement, action and our bodily situation in to discussion in phenomenology. He put emphasis on the spatiality of the body and the meaning of movement. There appear to be two dimensions where attention is directed by the bodily movement. On the other hand, when the body is moving we can perceive the spatiality of our own body, "it is clearly in action the spatiality of our body is brought into being" (Merleau-Ponty 1962,117). But by movement we can also sense the bodily connectivity to the environment. As Merleau- Ponty put it;"By considering the body in movement we can see better how it inhabits space" (Merleau-Ponty 1962,117). The expression Merleau-Ponty uses of the body inhabiting space, instead of

being in the space, is relevant. So instead of two separate entities, one observing the world, which is outside, he emphasized the interwoven connection of the body and the space.



**Figure 2.**

In Moving Laboratories the attention is directed to the proprioceptive sensations. The aim of the first sessions is to find a listening attitude towards oneself and the spaces.

## Embodiment

Francisco Varela, Evan Thompson and Eleanor Rosch continued in the footsteps of Merleau-Ponty's thinking and further examined the questions of body and perception. Embodiment is one of the key concepts. It refers to the body and mind connection, where these are not considered as separate, but joined as Varela, Thompson and Rosch put it; "By embodied, we mean reflection, in which body and mind have been brought together" (Varela, Thompson & Rosch 1991, 27).

With another term, *double sense embodiment* Varela et al. directed the attention both to the physical and to the experiential structure of the body, as they wrote; "For Merleau-Ponty as for us embodiment has this double sense: It encompasses both the body as lived experiential structure and the body as the context or milieu of cognitive mechanisms" (Varela et al. 1991, XVI).

With a third term *radical embodiment* Varela and Thompson claimed that our mind is not just in the brain, but that consciousness is linked to the continuing interaction of the stimuli from the environment, our bodily processes and our brain: "We also propose that the processes crucial for consciousness cut across the brain-body-world divisions rather than being located simply in the head" (Varela, Thompson 2001, 425).

This kind of connectivity related to body, brain and environment inspires looking into the experience of our bodies moving in architecture. In Moving Laboratories the aim is to find methods to access and explore the interaction. (Figure 2.)

Phenomenology has influenced architectural research related to questions of bodily experience in architecture. The experiential body and multisensory experience have been, for example, the constant themes of Juhani Pallasmaa's writings. His criticism has been directed to the hegemony of the visual sense in contemporary architecture. Instead he has articulated the need for a haptic architecture, which on a deeper level could enable the intimate encountering between body and space.

During the last decade interdisciplinary research between neuroscience and art and architecture has been emerging. Among ANFA, The Academy of Neuroscience for Architecture, a forum, which has been established in San Diego to link neuroscientific research to architecture, the aim of the collaboration is to gain more knowledge about human experience and the link to the built environment. Harry Mallgrave, who has written the few books linking neuroscience and architecture, challenges designers in the light of the new knowledge to become more aware of the biological and experiential character of our body:

*The picture of who we are is much more dynamic, not to mention challenging. For we are beginning to see the extent to which we, as evolved biological organisms, are continually reconstituting ourselves within environmental fields of stimuli that are sculpting or re-engineering our biological systems with ever quicker speeds and multiple layers of depth and complexity. And the fact that so much of this electrical and chemical activity, as we are now learning, responds to environmental stimuli on a multitude of levels has in itself numerous implications for the arts, and for the design arts in particular.*

*( Mallgrave 2013, 8)*

The view, which this rather recently begun interdisciplinary co-operation is opening, seems intriguing and manifold. The knowledge about the connectivity of our bodily processes, brain and stimuli from the environment can change how we should design architecture.

As this research is directed to enhancing the personal awareness of embodiment and architecture, neurophenomenology appears to offer the appropriate research direction. Since the role of emotion seems a key factor related to bodily processes and consciousness, as neuroscientist Antonio Damasio has introduced (Damasio 2000, Damasio 2010), these views are reflected as well in this PhD research. Next I will briefly introduce the neurophenomenological approach and review some of the keyconcepts related to the survey.

## **Neurophenomenological approach to First-person experience**

How to access and study the subjective lived experience? This was Francisco Varela's concern in the middle of 1990's, when the Chilean biologist and neuroscientist saw the need for a more disciplined study of subjective experience and launched a research direction called *neurophenomenology*. With neurophenomenology Varela wanted to continue the phenomenological tradition but to link it with cognitive science, to bridge the biological bases of subjectivity and the lived experience.

*"We need to examine, beyond the spook of subjectivity, the concrete possibilities of a disciplined examination of experience that is at the very core of the phenomenological inspiration. To repeat: it is the re-discovery of the primacy of human experience and its direct, lived quality that is phenomenology's foundational project "(Varela 1996, 335).*

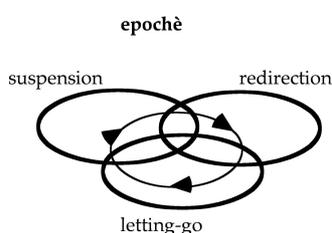
With this "beyond the spook of subjectivity" Varela seems to say that we should reject the suspicion towards research that is directed to study the subjective views, which in science is not typical. Instead he declared a need for pragmatic methods to explore the first-person experience. His aim was not to create a new theory, but to find methods of advancing a practical, personal activity, to be able to systematically "cultivate the skill"(1996,338) and this way to renew our understanding of the knowledge about, how we are connected to the world.

A bit later Depraz, Varela and Vermersch described the structural dynamics of the first-person experience as *the Gesture of Awareness* (1999). Coming from different professional backgrounds; philosophy, cognitive neuroscience and

psychology, their aim was to find a common structure for the act of becoming aware. Their emphasis was put on the practical aspect opposed to theory, as they said “we seek the sources and means for a disciplined practical approach to exploring human experience” (Depraz et al. 2003, IX). The common structure was approached as well from their own personal knowledge, know-how from various meditative practices. They stressed the disciplined practice, activity, doing and learning also themselves along the way. (Depraz et al. 2003, IX)

## The Gesture of Awareness

The procedure Depraz, Varela and Vermersch looked for was aimed at describing the activity of becoming aware. “Briefly put, we wish to understand how we come to examine what we live through” (Depraz et al. 2003, 2). The approach they introduced is rooted in phenomenological reduction, epoché, but the renewal was to incorporate it with the knowledge from psychological and contemplative sources. Depraz has defined the concept epoché as follows: “Literally, the *epoché* corresponds to a gesture of suspension with regard to the habitual course of one’s thoughts, brought about by an interruption of their continuous flow” (Depraz, N. 1999, 99). Their intention was not to create a new theory of experience, but to “describe an activity, a concrete praxis” (Depraz et al. 2003, 1).



**Figure 3.**  
The Gesture of Awareness

© Depraz, Varela & Vermersch. 1999

The structure they introduced, consists of the cycle of epoché and the following intuitive evidence. The gesture of awareness or epoché (Figure 3) consists of three phases: suspension, redirection and letting-go. *Suspension* means, that one needs a “brake with the natural attitude”. The following phase, *redirection*, refers to the conversion of attention, turning the attention from the “exterior” to the “interior”. *Letting –go* is a phase of waiting and being with the experience. Although this phase is passive in the sense of acceptance, however one is actively receptive towards the experience, “letting something be revealed” (Depraz et al. 2003, 25,31). As they put emphasis on the practical aspect, Depraz et al. described with examples, how the epoché is used in various fields, as in meditative techniques or guided introspection.

Depraz et al. included two kinds of movements in the basic structure, the epoché. The first fold is in redirection/conversion, turning to yourself and the second, letting –go is opening to yourself. These folds create together an intertwining cognitive and affective axes of becoming aware (Depraz et al. 1999).

## Intuition, Intuitive evidence

The gesture of awareness leads to intuition. Varela linked intimacy with intuition and characterized that “moving intimacy with our experience corresponds well to what is traditionally referred to as intuition” (Varela 1996, 337).

Depraz et al. describe intuition “as a gesture” and “as a process”. The second cycle which follows the first cycle, epoché, is called intuitive evidence. “Intuition is thus a unique mental capacity that comes between the new awareness allowed by suspension and an inscription of results in traces others can read or see” (Depraz et al. 2003, 43).

### **Intuitive evidence**

As Depraz et al. say: "intuitive evidence is less a result or a product than an act and process of coming forth." (Depraz et al. 1999, 50). Intuitive act is a process from emptiness to fulfillment. "When filling-in and intended meaning both perfectly coincide you have intuitive evidence" (Depraz et al. 1999, 49). The lightning-bolt depicts the sudden unexpectedness, surprise, which comes forth (Depraz et al. 1999, 49). But the act of intuition can be slow as well, as Claire Petitmengin- Peugeot pointed out (Petitmengin-Peugeot 1999, 44).

The intuitive evidence in the Moving Laboratories is approached with gentleness. As Depraz et al. described the nature of the phase letting-go, this should be approached with "light-handed fashion" (Depraz et al. 2003, 49). The descriptions of the intuitive evidence form the core of my research material. The validation method is related to neurophenomenology as well.

### **Proprioception**

Why is attention directed to proprioception? Merleau-Ponty's ideas about the moving body in Phenomenology of Perception is my first motivator. If we again think of this quote "By considering the body in movement we can see better how it inhabits space" (Merleau-Ponty 1962, 117), how can we understand what this means, if we do not explore this personally? On the other hand as Depraz et al. indicated, there can be difficulties in the suspensive attitude, which is needed to initiate the Gesture of Awareness, since "attention is naturally interested in the world" (Depraz et al. 1999, 7). Instead they stressed the meaning of organic support, which has been used for example in meditation techniques; "These practical techniques commonly take advantage of the fact that reversing your attention coincides in part, in the name of organic support, with paying attention to your body, to kinesthetic and proprioceptive sensations" (Depraz, et al. 2003, 36).

Focusing attention to bodily movement is a link to proprioception. "Proprioception is the inner sense by which the body is aware of itself" as Oliver Sacks described (Sacks 1995). It was Charles Bell, who first called the positions and actions of limbs as the "sixth sense" (McCloskey, 1978). The term proprioception was first introduced by Charles Scott Sherrington 1906 "to define the sense of body position" (Johnson & Soucacos, 2010). Barbara Montero, who has been researching proprioception related to dance has defined it as follows: "Proprioception is the sense by which we acquire information about the positions and movements of our bodies, via receptors in the joints, tendons, ligaments, muscles and skin" (Montero, B. 2006, 231).

Hence proprioception has two kinds of dimension, sensations related to the positions of the body as well as to bodily movement. Johnson and Soucacos have indicated proprioception like this: "Proprioception includes two components, the sense of stationary position of the limbs (limb position sense) and the sense of limb movement (kinaesthesia)" (Johnson & Soucacos, 2010).

### **Moving Laboratories**

The aim in the Moving Laboratories is to find a listening attitude towards the spaces. The practical approaches how the Gesture of Awareness is applied in Moving Laboratories is the key content of my PhD research and not addressed in this article. The aim is to develop two kinds of learning skills, the dimension of becoming more aware of the embodied experience in the spaces, but as well to develop the ability to produce descriptions of them. As Varela said, "If one does not cultivate the skill to stabilize and deepen one's capacity for attentive bracketing and intuition, as well as the skill illuminating descriptions, no systematic study can mature" (Varela 1996, 337-338).

The concept follows Francisco Varela's idea of a Portable Laboratory. With this he referred to a topographical place, which is needed to carry out a scientific research work. In a Portable Laboratory the place is the body. In addition to the place, which is the body, he pointed out, some "gestures" are needed. These

are practises, which are used in the survey. As Varela described “this portable, self-laboratorium is the place for human discovery and transformation” (Varela 1999).

The bodily movement has a key role in the survey, in order to observe in action the encounter with the spaces and to look inside one’s own proprioceptive sensations.

### **Three approaches**

In the Moving Laboratories the Gesture of Awareness is approached in various ways. As Depraz, Varela and Vermersch pointed out, in the process of becoming aware suspension is the key, the triggering gesture. They saw different possibilities to initiate the suspension: 1) an external event activating the process 2) another person telling or modeling the gesture and 3) stabilizing oneself the suspensive attitude (Depraz et al. 2003).

All of these three suspensive gestures appear and overlap in the laboratories. Along with the Gesture of Awareness an idea of a *session* is applied (Depraz et al. 2003.20). This means there are organized events, which take a certain time, in this case each about 1-2 hours, and there is a certain place for this event.

The descriptions of the intuitive evidence are essential in the research. Depraz et al. pointed out:

”There are three types of different descriptions we need to consider:

1. Simultaneous or deferred description
2. Written or oral description
3. Autonomous or mediated description ” (Depraz et al. 2003.73).

In this survey there are 1) preparing sessions, 2) sessions related to experiencing the spaces, 3) sessions collecting the intuitive evidence and 4) validation sessions.

The intuitive evidence of Moving Laboratories consists of immediate descriptions, like 3-dimensional models, or drawings and written descriptions. Later an interview session assists in directing the attention to the various dimensions of the experiences.

## **Conclusion**

This paper has introduced the idea of Moving Laboratory as a means to study the first-person experience related to embodiment and architecture. The focus has not been to open the content of the Moving Laboratories themselves. Instead I wanted to clarify the background motivation, some of the key concepts and especially the neurophenomenological approach, which has opened methods to access and survey the subjective experience linked also to architecture. The PhD research, which consists of many Moving Laboratories includes various ways of applying the Gesture of Awareness and the idea of sessions. But there are also common features, such as questions like *What kind of emotional processes are connected to the experience with the spaces? What kind of spaces or elements in architecture attract our body?*

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