Playing Seriously: An Introduction to Corporeal Architecture, Neuroscience, and Performance Art

Maria da Piedade Ferreira

Editorial Summary: With a focus on experiential qualities Maria da Piedade Ferreira distinguishes her research object from classical (rather technical) quantities such as load-bearing capacities. In her text she illustrates how she employs methods, techniques, and instruments from performance art and neurosciences to investigate the effects of spatial conditions on the human body. In doing so, she explores a mix of qualitative and quantitative approaches, namely by experimenting with emotion measurement: Qualitative research, by including methodologies which attribute measurable values to the felt experience, might help us better understand the effects of the built environment in the human body during the design process itself, and after building. Accordingly, her aim is to integrate art and science methodologies that allow us to design spaces as intelligent extensions of the human body and positively impact how this feels and acts in the world. [Ferdinand Ludwig]

Keywords: Corporeal Architecture; Neuroscience Performance Art; Embodiment; Emotion Measurement; Human Centered Design.

On Qualitative Research

A broad definition of »qualitative« defines this adjective as relating to, measuring or measured by the quality of something rather than its quantity. In the context of the research project, Corporeal Architecture, the term »qualitative« additionally acquires the meaning of the procedure which, by adopting a wide scope of analytical tools, allows us to evaluate and extract conclusions on the effects of architectural spaces and design objects in the human body and mind. By including methodologies which attribute measurable values to the felt experience, qualitative research might help us better understand the effects of the built environment on the human body during the design process itself and after building (Mallgrave 2010: 133–144).
Performance for the Design Project »Tricky Tables«.
Maria da Piedade Ferreira, FATUK Kaiserslautern, 2017/2018.
Photographer: Maria da Piedade Ferreira, 2018.
Investigating a qualitative approach to research, the *Corporeal Architecture* project integrates performance art, qualitative methods, psychophysiology, and self-assessment tools in the teaching of architecture (Ferreira 2017). The aim is to understand how to create spaces which may improve the quality of the built environment and use these tools to observe in real-time how body, space, and movement are interdependent.

Qualitative research methods have a long tradition of being used in psychology, mathematics, medical sciences and more recently, neurosciences, thereby revolutionizing many other disciplines. Architecture and design are no exception, and a growing community of individuals and institutions are embracing the potential of qualitative research to analyze how the existing built environment can be improved to address contemporary health concerns characteristic of urban settings (Goldhagen 2017: 2–41). This offers us the possibility of creating design methodologies that are science-informed. A building, home or office can then be designed or adapted as an intelligent extension of the human body and positively impact how we feel and act in the world in the world (Sussman and Hollander 2015: 1–9).

Qualitative research offers many possibilities but also poses challenges and ethical concerns. It is important that while working with such tools, one clearly has in mind the current limitations of technology and understands that the measurements collected should not be seen as deterministic but as indicators of how, body and space/design objects affect each other. Moreover, architects must learn to develop the sensitivity to deal with the consequences of looking so deeply into the bodies and lives of others. Therefore, integrating such practices in the context of design and teaching also poses the challenge to architects, as seen in medical professions, of learning how to respect boundaries and privacy, and use the information collected with the highest ethical standards.

**Research Project – Introduction**

The artistic research project *Corporeal Architecture* takes place in the context of design education and explores the relationship between body, space, and object, in particular taking into consideration the contemporary scientific view of the body and mind as a whole – generally addressed as the embodied mind theory (Varela et al. 1991). It is my proposal that the integration of the somatic techniques of performance art and neuroscience in architectural
design have the potential to develop corporeal awareness and stimulate the creativity of future designers.

Supported by experimental work, which includes methodologies from psychophysiology and neuroergonomics, the doctoral thesis *Embodied Emotions: Observations and Experiments in Architecture and Corporeality* argues that advances in fields related to the study of the brain shouldn’t be ignored by architects, since they present an opportunity for the discipline to rethink its approaches to design and teaching (Ferreira 2016).

The methodology it proposes combines the somatic practices of performance art (Marshall 2008) with emotion measurement tools (Kim et al. 2015: 10–12) in design education and encourages the active creative participation of students regarding the design, fabrication, and performance with body extensions, body restrictions, pieces of furniture, and installations. The performances are documented on camera and film and are archived in the YouTube channel *Corporeal Architecture* as well as the website corporealpersona.co.

**Hypothesis of Research**

The present hypothesis is that by training students to be able to tune into their own corporeal awareness using techniques from performance art and technology, their spatial, sensorial and perceptual skills will expand, develop, and refine and, consequently, their creativity and sensitivity as designers will improve. Such approaches are not new; the outcomes of the pedagogy at the Bauhaus, which integrated performance, philosophy, and science as a teaching method, are still a living testimony (Mallgrave 2013: 128–139). Therefore, *Corporeal Architecture* aims to retrieve a tradition that has always been important in the teaching of architecture and design: learning directly through the body and experience, and extending it through technology.

**Methodologies, Approaches and Alignments**

Each human body carries a history and a story. When working with human bodies, especially in states of vulnerability as often occurs when applying the somatic techniques of performance art and psychophysiology measurement tools, it is paramount to create a place where each student does not feel coerced to expose or participate, but has the space and the time to choose the level of participation which feels appropriate and meaningful. This is a
golden rule in my practice, especially since most students of architecture and interior design have never been exposed to performance art, and have only used emotion measurement technology in a medical context.

Students of architecture often legitimately ask – what does this have to do with architecture? So it is also my intention that they can get the most out of the classes and understand how the exercises develop their skills as designers.

Furthermore, when teaching performance art, for example, as usually happens in an art academy, students are challenged to overcome inhibitions and certain forms of cultural conditioning which might present limitations for their creative development. Here, the same dilemma applies as in theatre, for example, where a director might use aggressive strategies to break the passivity of the actor (Marshall 2008: 100–102). It is my position instead, that positive reinforcement and encouraging each student to choose their own themes for reflection and their own level of expression and participation bring out the best of their creative potential. Joy, pleasure and play are conscious strategies which I employ in my classes in all stages of the design process – design, building, and performance. These strategies are not permissive – my role as teacher is to ensure that the atmosphere is playful but that there are rules that always include the respectful treatment of oneself and one’s colleagues, and privacy regarding the data obtained.

Aims and Objectives

The Corporeal Architecture project aims to explore the affective influence of architectural space and design objects on the human body, whether empathy/attunement between the user's body and its surroundings can take place (Pérez-Gómez 2016: 165–196), and how affordances are expressed in action (Noë 2004: 103–106). Through this methodology, students experience main interlocking strands: an introduction to the somatic techniques of performance art, which is undertaken through practical exercises that directly work with the body in movement and basic notions of neuroscience, (Eberhard 2009), behavioral sciences, (Bradley et al. 1994: 49–59) sensorial design, (Pallasmaa 2005: 70–71) affective science (Lang et al. 1998: 1248–1263) and psychophysiology tools (Kim et al. 2015: 10–12).

Designed to make students aware of their own body's relation and reaction to space, such experiments are taken in the context of seminars and workshops with the aim of developing their own corporeal awareness.
Questionnaires and other self-assessment tools are often also employed, taking into consideration that the information collected is most important as direct feedback on bodily states under certain conditions, and not necessarily a deterministic analysis of effect.

**Context: Qualitative Research**

Now, more than ever, is a designer also someone who conceives a space, taking into account the well-being of its users and aiming to provide places where meaningful experiences happen (Ruggles 2017: 89–97). Physiological measures recorded from the body, such as heart rate, skin conductance, and blood pressure, which have been applied in experiments for the *Corporeal Architecture* project, have previously been used in psychological studies (Lang 1998: 1248–1263) and in neuroergonomics.

Both psychophysiology and neuroergonomics share one goal — the design of safe and efficient technologies and systems for human effort. Therefore, such methodologies offer a very fertile ground for designers and architects to conduct research, particularly when integrating performance art. Although the technology still has more limitations than possibilities, I stand by the position that an integrated design practice that includes such methodologies and developments will not only radically change the way we design but, most importantly, how we live.

Such approaches also offer problems like, for example, the question of «data bias» which is not only a contemporary concern, but has been a constant historical reality, as statistics and histories have mostly been written from a male gendered perspective. Data bias has for centuries guided how we think, design and act in the world, and established ideas on comfort and usability. Historically, and especially after the Industrial Revolution, design objects were mostly adapted to generalized male standards based on the averaged collected data from male-gender humans (Criado Perez 2019: 29–66). Such a built environment shaped cultures and identities, forcing everybody, regardless of one’s naturally imperfect humanity, to adapt to such standards. And although the 21st century has definitely seen improvements in this regard, most of the spaces we live and work in are mostly adapted to the efficiency-driven ideal of the «car-driving healthy male standard», a residue of Taylorism.

There are also fundamental aspects of being human and of the creative process that are not measurable or translatable as data, such as play, which
develops with improvisation and intuition. Another non-measurable human feature has to do with our innate interest in ritual and need for introspection (Mallgrave 2018: 155–175). In a century when religion has less importance than before and human beings’ instinctual need for community and ritual is increasingly met by commercial experiences, it is architecture that has the responsibility to create typologies where such needs are met; Alberto Pérez-Gómez (2016: 165–196) refers to architecture as a place for free enjoyment or catharsis, which can take place where humans individually and collectively feel a sense of attunement.

The *Corporeal Architecture* project aims to act by integrating playing in teaching as a creative strategy characteristic of performance art, while also taking reference from ritualistic traditions that address the movement of the human body, the breath, and the interaction with objects and other bodies. By learning, for example, to observe how the rituals of everyday life develop, such as cleaning the house, preparing a meal or taking a walk in a park, and how the placement and order of the objects and buildings which support such rituals allow humans to achieve goals and create a sense of placement and feel situated, students can understand their importance but also how, at the same time, such conventions might equally in time become obstructive or even un-desirable.

I work with performance art to introduce the idea of protocol in the interaction between body and space or body and object, as well as one’s own body and the bodies of others, and to question through direct interaction where the protocol comes from and why, and which narratives are performed in such patterns of behavior. In this way, students are sensitized to their own habits, and by observing their own movement, learn how such protocols are shaped by cultural identities (Marshall 2008: 97–99). When working with students, I also try to find in the mix of all these conditionings the subtle idiosyncrasies that make each student a creative individual. By becoming aware of one’s patterns of thought and interaction with the world, students become conscious of their agency and limits, their possibility of choice, and their potential to become active participants in shaping and transforming the world.
Conclusion

Working between the seemingly different worlds of art, architecture and research brings forth questions, as my work is not always understood by students and peers. My research is dedicated to the conscious exploration of this situation of liminality, as the capacity to relate different ways of conceiving and addressing the same topics, across disciplines, and between worlds. Therefore, my approach to technology and specifically emotion measurement takes advantage of what we can learn about the interaction of the body and space through data, but does not accept it as the full picture of the felt experience. Rather, it is understood more as an abstraction that is conditioned by the architecture of the machines used and their own form of artificial sentience. In this regard, I approach technology (as well as design and architecture) as an extension of the human body's sensorium. It is important to note that just like human bodies, machines are prone to failure. This is especially the case when working with emotion measurement tools, which from my experience, pose many problems. Bio-markers require direct contact with the body and do not respond well to continuous or sudden changes of movement. This alone considerably restricts the range of motion and situations which can be explored by analyzing a body performing in architectural space. So my experiments with emotion measurement took place in minimalistic settings which explored basic human actions, such as sitting at different heights and positions for different periods of time and performing simple daily actions such as eating dinner, reading the newspaper, dressing and undressing. Another aspect, which is especially relevant in my practice and is influenced by the presence of digital media and social networks in our lives, is privacy. This is particularly important since my work with performance explores improvisation, and in such situations, it is not uncommon for unconscious patterns to take expression. Another strategy I consciously employ in my practice is to perform myself with the group. I develop the same task, show how the preparatory exercises are done, and perform. Here, I work again in liminality, as performer and director, often also documenting. This requires a high level of presence. It is often the biggest challenge in a performance with students of architecture to create an atmosphere where, for a certain amount of hours, the entire group is fully present. The preparatory exercises encourage this, but it is not always possible or successful and the outcomes are unpredictable. However, working within this paradox is also the source of many creative opportunities.
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