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# Raw Materials and Emphasis on Tactile Perceptions to Create Atmospheres

## A Tactile Experiment to Explore Bodily Sensations

Nuria ALVAREZ COLL<sup>1</sup>

*Abstract.* Vernacular architectures mirror the territory where they are inscribed; contemporary architecture seems to be uprooted. As a counterpoint to a trend towards abstraction, can the use of the bio-based materials and the promotion of a tactile and more direct relationship to the world be allies to create architectural spaces that reaffirm a sensitive link to the body and reanimate a genius of the place (Berque, 2016)? “Dressing as a second skin” is the beginning of a series of tactile experiments who will explore the architectural potential of bio-sourced materials in relation to bodily sensations in a space.

**Keywords.** Atmosphere, Touch, Raw Matter, Bio-Based Materials, Haptic, Materiality, Texture

### Raw Matter to Create Rooted Spaces

Heir to a culture marked by modern dualism, man seems to find himself, since the development of industrialization and the exploitation of resources, abstract from the environment. By extension, many of today’s human creations are considered by some authors to be uprooted (Pallasmaa, 2015). Vernacular architectures mirror the territory where they are inscribed. Built with available and local materials, these constructions appear as an extension of nature, its colors, its material, its forms, its textures... Today, the proponents of architecture claimed as more contextual are partly renewing this idea. For Peter Zumthor (2006) or Wang Shu (2013), this research for a certain “harmony” or concordance between the landscape and their architecture is rooted in the material by relaunching a more tactile apprehension of its surfaces.

This research will contribute to the debate and to the development perspectives of the use of bio-sourced matter (materials that keep the state as close as possible to its original state: earth, sand, straw, stone, wood, etc.) also called “raw matter” hereon to designate its absence of elaboration. Considered more sustainable in the ecological debate, the impact of these “raw materials” on the perception and construction of the atmosphere must be better known. This work aims to bring these elements of knowledge and explore methods to bring them about. In this perspective, we ask ourselves the question: how can we explore the architectural potential of bio-sourced materials in relation to bodily sensations in a space?

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## The Study of Atmospheres and Touch as a Focus

The human sensations created in an architectural space turn out to be a complex knot of impressions and emotions that need more research by getting through different approaches. Therefore, this research is located in the intersection of different disciplines: philosophy, psychology, phenomenology and architecture.

Interest in the study of atmospheres in architecture has grown since the end of the last century, and the consideration of the affect and sensations related to ordinary experience in the design of spaces is subject to multiple investigations. Recently, the finish architect Juanhi Pallasmaa emphasizes the sense of touch in contrast to the hierarchy of view in the design of spaces (Pallasmaa, 2015). Tactile function allows us to explore a body experience in space and it is immediately in the field of affectivity. This parameter is at the main core of the research.

“Perhaps the tactually unengaging nature of much of the modern material world is a product of our arms-length relationship to the environment.”  
(Howes,2005).

We start from the hypothesis that architectural spaces designed using “raw” materials have the ability to create specific atmospheres and processes of apprehension, design and manufacturing involving the body directly.



**Figure 1.** Relational objects,  
Lygia Clark, 1980

This tactile experiment is titled “Dressing as a second skin” and seeks to approach the types of “body feelings” awakened by materials of different nature when a subject comes into contact with them.

This experiment was inspired by the work of the Brazilian artist Lygia Clark. During his last stage, his work detaches itself from the sense of sight and highlights physical contact. Through the “Relational Objects”<sup>2</sup> placed on different parts of the participant’s

*2. These objects do not have specific characteristics, they are defined in the relationship they establish with the fantasy of the subject during the sessions.*

body, she claimed that he could reach a preverbal stage, what she called the memory of the body. Thus, a relationship is established between the objects and the body of the participant through his sensory image and physical contact.

## Tactile Experiment: “Dressing as a Second Skin”

### *Spatial and Material Setting of the Experiment*

The experiment was set up in Grenoble in a room of 15m<sup>2</sup> in an apartment that was transformed into a workshop for 3 days during the month of June 2020. It was experienced by 10 participants (6 men and 4 women) between the ages of 20 and 60. The search for subjects of a wide range of ages and with various professional activities seemed to us important for a heterogeneity of answers.

We have chosen materials that are contacted daily with our skin. More concretely, these 20 elements to dress the participant were divided into 2 categories: bio-based and processed materials.

Matière	Composition	Position	Matière	Composition
1 Coussin	Balles de riz	sous tête	1 Coussin	Microbilles polystyrène
2 Couverture	Peau de mouton	genoux et jambes	2 Peau de mouton	70% polyester - 30 % polyacrylique
3 Tapis tréssé	Jonc de mer	sous bras	3 Tapis tréssé	Fibres en plastique
4 Tissu léger et transparent	100 % coton alimentaire	en couvrant bras et main	4 Tissu léger et transparent	1000% polyester
5 Cuir	cuir de vachette	sous bras	5 Cuir	Tissu enduit en plastique
6 Fil à tricoter	100 % laine merinos	pied	6 Fil à tricoter	100% acrylique
7 Foulard	100 % soie	cou et entourer tête	7 Foulard	100% polyester
8 Matière en brut	100 % coton brut	main	8 Matière en brut	Polyester
9 Corde	100% chanvre	avant bras	9 Corde	Plastique
10 Sac	100 % jute	pied	10 Sac	Plastique

**Figure 2.** Matter guide with 10 bio-based materials (left) and 10 processed materials (right). In the middle body parts were these matters were placed. Nuria Alvarez Coll, June 2020

These materials were categorized on the opposite sides of the carpet. When the participant lay down, the researcher placed the different materials in the order indicated on the table.

### *Procedure of the Experiment*

The duration of the experiment was between 60 and 80 minutes for each participant at a time. When the instructions of the experience were presented, the participants closed their eyes and were guided by the researcher to the experience room. “Dressing as a second skin” takes up the research on tactile perception undertaken by psychologist J. James Gibson, based on the notions of passive touch (“being touched”) and active touch (“touching”) (Gibson, 1962).

**Passive touch.** The participant remains lying, motionless while the different materials are placed around his body. It is an experience in two phases: one for “dressing” with bio-based materials and the other with those transformed. The participant first expresses the immediate emotion by saying “yes” or “no” to the material, if his body accepts or rejects it<sup>3</sup>. Then he expresses his body sensations.

**Active touch.** The participant is seated and develops by himself exploratory movements towards the same materials presented in the first phase. Confronted with both matters at the same time, he must choose the one he prefers and express the reasons.

3. In reference to Peter Zumthor words in his book “Atmospheres”: “There is something in us that instantly tells us a lot. Immediate understanding, immediate emotion, immediate rejection.”

Proposing pairs of materials very close to the touch but different compositions (transformed or bio-sourced) the experiment analyzes different body sensations related to the nature of the materials and the processes involved.

As data to be analysed, the experiment counts with the transcription of 10 participants on two experiments. These data were divided into two analysis categories:

- Analysis of closed responses (yes, no and material preference) that is presented in the form of percentages;
- Detailed analysis of open-ended responses collected by direct note taken during experiment.



**Figure 3.** Passive touch experience.  
Nuria Alvarez Coll, June 2020



**Figure 4 and 5.** Active touch experience.  
Nuria Alvarez Coll, June 2020

## Findings

### *Being Touched vs Touching*

Passive touch does not reveal, in most cases, a real difference between materials of very close textures; the nature of the two types of materials is confused. For example, the body sensations described by the participants in contact with natural leather refer to the processed material: “plastic,” “neoprene combination to go into the water.” And conversely, for processed leather: “it reminds me of leather,” or “seal skin.” Placing the head on the polystyrene ball pillow or on one filled with rice balls was in both cases linked with the grains of sand.

In terms of active touch, participants’ responses highlight a general preference for bio-based materials. There are 5 materials for which there is an obvious answer: leather, raw material and rope.

### *The Language of Materiality*

The free answers of the participants allowed us to analyze the vocabulary that appears when we evoke materiality. The emerging categories are:

1. Judgement: “pleasant,” “comfortable,” “like or dislike”...
2. Material description or material identification: “it is like leather,” “heavy cotton,” “rough”...
3. Metaphors: “like a cloud,” “spider’s web,” “lightness of butterfly wings.”<sup>4)</sup> Memories: “My teenage room with coconut on the ground... I remember I chose it, but it’s not pleasant to walk on it.”<sup>5)</sup> Body feelings and interaction with other senses: “reassuring,” “soothing”...

The category that we thought was more relevant to analyze is the last one, “Body feelings and interaction with other senses” to be the closest to the notion of ambiance at the phenomenal level.

### *Link Between Sensory Modalities*

Using a mask on eyes by removing vision allows other senses to sharpen. In the responses of the participants, the link with the other senses was very present.

All references in the sense of smell are related to raw materials. For the transparent cotton fabric, one participant commented as “The smell of hemp or linen is quite pleasant.” A participant expresses body feeling at touch, in contrast to the smell of matter when his arm comes into contact with the sea rush carpet: “It’s rough, it stings. At the same time, it smells of straw, of fields.”

Sound is also an important factor for the participants and justifies affirmative or negative responses to the material. One of the subjects explains his perception process when he comes into contact with the pillow filled with rice balls: “The sound and the cracking evoked me from the fibers of dry herbs like lavender, a very dry plant that cracks or sand. I like the idea of natural material.”

There was also a call in the sense of sight, referring to the color of the matter (concretely 2 subjects out of 10). From these two participants, only 2 comments referred to the color of the material for those bio-sourced versus 14 comments on processed materials.

The passages between senses thus characterize the overall experience, guiding the responses of the participants.

### *Limitations of the Experiment*

The analysis of the answers shows us that the bodily sensations depend in part on the place of the body where materials are placed and the duration of contact.

The comments that highlight this first observation are mainly in relation to the transformed silk scarf, placed on the neck of the participants: “oppressed for the place where it is but pleasant material,” “Pleasant but can be related to the part of the body... I like being covered on the neck.”

The duration of contact with the material also causes moments of doubt among the participants. Being touched by the cotton transparent fabric, one of the participants commented: “We can believe that it is pleasant but ultimately not. We can be fooled...” Another subject, when his body comes into contact with the silky polyester: “As it’s hot, it’s fresh and pleasant. But it’s a synthetic material and it won’t be pleasant for long.”

## Conclusions

The objective of this experiment was to understand and measure the different body feelings of our surface -skin- in contact with transformed or raw material surfaces. This first exploratory experiment allowed us to analyze the language used to evoke materiality and define the emerging categories. The results point already the importance of further knowledge gathering and the integration of materiality as an essential element in the design of ambiances.

“Dressing as a second skin” gives us the impetus to continue the explorations through an active touch that is not limited to the hands, if not all our body-skin. These are the bases of a search around touch with a multisensory spirit.

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