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Experiencing Space Through The Senses

A Phenomenological Study of 'Scent Tunnel' and 'Vertical Panorama Pavilion' through Student Model-Making

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Abstract: This study investigates the phenomenological experience of space through sensory engagement, focusing on two works: The Scent Tunnel by Olafur Eliasson and the Vertical Panorama Pavilion by Studio Other spaces. Twenty-eight Sigma College of Architecture students engaged with these installations through physical model-making and storyboarding. Fourteen students explored The Scent Tunnel, while the other fourteen worked on the Vertical Panorama Pavilion. Each group documented their sensory and emotional encounters with the installations via immersive storyboard narratives. Using a phenomenological framework informed by thinkers such as Maurice Merleau-Ponty, Juhani Pallasmaa, and Gaston Bachelard, this paper reflects on how embodiment, memory, and atmosphere influence architectural perception. The study highlights how multisensory and experiential learning methods deepen the understanding of space, ultimately bridging theory and practice in architectural education.

Index Terms -Sensory architecture, Phenomenology, Embodiment, Student model-making, Sensory experience

I. INTRODUCTION

Architecture is not merely viewed, it is also heard, smelled, touched, and emotionally experienced. The qualitative nature of space, created by its sensory and atmospheric properties, is at the center of how we experience built environments. As models of education are developed, integrating experiential learning techniques like model-making and reflective story documentation provides more insight into spatial understanding. This research arose from a studio exercise executed at Sigma College of Architecture, where 28 students constructed models for Olafur Eliasson's "The Scent Tunnel" and Studio Other Spaces, the Vertical Panorama Pavilion. These projects were deliberately chosen for their capacity to engage the senses in contrasting ways. The Scent Tunnel foregrounds olfaction — a rarely explored dimension in architectural education — and evokes memory, emotion, and intimacy through smell. Meanwhile, the Vertical Panorama Pavilion invites participants into a world of filtered light and shifting color, where the sense of sight and atmospheric awareness dominate the spatial encounter.

This essay refers to phenomenology to learn about the way students embodied these installations through their senses and bodies. To do this, it considers model-making as pedagogy and provides a critical perspective on the engagement with sensory as an architectural approach.

II. THEORETICAL OVERVIEW

Writings with a focus on phenomenology, especially concerning architecture, stress the importance of lived experience and physical interaction. With the influence of thinkers like Maurice Merleau-Ponty and Juhani Pallasmaa, this research acknowledges the role of perception and embodiment in architectural knowledge. Pallasmaa (2012) stresses, “architecture is an art of the body as much as it is of the eye” in *The Eyes of the Skin*. Along those lines, Merleau-Ponty’s (2013) *The Phenomenology of Perception* the body is a primary instrument in knowing the world drives the methodology of this research. Bachelard’s (1994) *The Poetics of Space* adds to this with an explanation of the bond between space and memory by arguing that certain spaces have the remarkable ability to provoke powerful memories. Christian Norberg-Schulz (1980) took it further with *Genius Loci*, which argues that architecture has to capture the spirit of the place to foster a sense of identity and belonging. In architectural discourse, this sentiment is enhanced by Peter Zumthor (2006) in his writings on atmosphere, who states that qualities like light, sound, and material, which are often deemed secondary, construct an experience beyond sight, which involves the whole body. These all together form the phenomenology of this research.

III. RESEARCH METHODS

Involving the entire class, as described, is both beneficial and immersive for students. This study took an active teaching approach involving 28 architecture students from the Sigma College of Architecture in a design contemplation exercise. Students were split into 2 groups of 14. One group was assigned the task of modelling the Scent Tunnel, while the other group was assigned the Vertical Panorama Pavilion. The students created and shaped the models along with their outlines, documenting their thoughts in storyboards and sketches alongside outlines of their logs.

The topic of this study focuses on developing an approach to analyzing phenomena from a qualitative perspective, which uses phenomenology. The primary data in the form of student-created storyboards was subjected to thematic analysis based on sensory and emotional patterns identified. The analysis was also supplemented by reflective interviews and observation during model-making sessions.

IV. PHENOMENOLOGICAL EXPERIENCE OF TWO INSTALLATIONS

4.1 Case 1: The Scent Tunnel – Multi-sensory Immersion and the Phenomenology of Smell

Olafur Eliasson's Scent Tunnel provided a rich context for considering space as multi-sensory and phenomenological. To understand and make sense of this work, fourteen students at Sigma College of Architecture engaged in an active learning activity where they constructed scale models of the work using foam board, PVC Pipes, and mill board, and then developed storyboards based on their imaginary tunnel walk throughs.



Fig 4.1.1



Fig 4.1.2



Fig 4.1.3

Figures 4.1.1, 4.1.2, and Fig 4.1.3 explain the model-making process of the students working on The Scent Tunnel.

They built sensory experiences – kaleidoscopic visions of smell, light, and feeling shifting, as one would perceive in the real tunnel – and placed themselves in the users' shoes. Their storyboards picked up on a range of reactions: some noted calm and nostalgia, others attention and curiosity, and even confusion. These were intensely personal and experiential responses, substantiating Pallasmaa's (2012) argument that architecture is less visual than a multi-sensory experience.

Another student remembered: "I recall the childhood tunnel — jasmine fields. Not just the smell, memory, but an aura, a recollection this building induced."

"Instead, my mind turned to sequence, thinking about how smell and movement together form a choreography of feelings," is how another student responded.

What a more rewarding task. There was the peer review process. Students learned from each other's storyboards. Put in terms of different user experiences, this underlined the point that architecture must accommodate a multiplicity of experiences, especially where client-driven design is involved.

"I came to understand that whereas I have viewed the tunnel as frivolous, another student of mine viewed it as reflective. The variation in that impression taught me just how sensitive architectural design has to be to varied users."



Fig 4.1.4



Fig 4.1.5

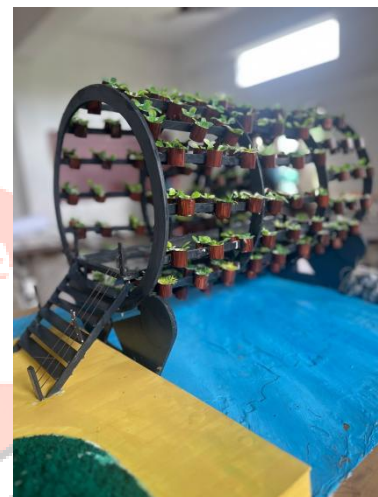


Fig 4.1.6

Figures 4.1.4, 4.1.5 and 4.1.6 explain the final outcome of The Scent Tunnel.

The exercise also demonstrated how atmosphere and mood are built architecturally. Through visualizing and reconstructing filtered light and moving fragrance zones, students discovered how evanescent properties like smell and color could influence spatial perception and mood, using Zumthor's (2006) "atmospheres" theory and Bachelard's (1994) writings on memory and space.

Lastly, this case showed how model-making, reflective writing, and peer review can be employed as tools for experiential learning for students to learn about phenomenological architecture, not just in theory but through body and imagination.

4.2 Case 2: The Vertical Panorama Pavilion – Chromatic Light and Embodied Perception

The Vertical Panorama Pavilion, Studio Other Spaces' design for The Donum Estate in California, is a work of spatial storytelling by the interplay of color, light, and time. Made up of 832 laminated glass panels of 24 colors, the pavilion casts filtered natural light to form a dynamic multicolored interior. As the sun travels through the sky, the atmosphere of the pavilion changes so that it is a living field of color that interacts with users in a deeply sensory and temporal experience (Tovar, 2024).

For this research, another 14 students at Sigma College of Architecture investigated the installation using model-making and phenomenological description. Students used foam board, OHB sheets, colored OHB

sheets, and mill board to replicate elements of the pavilion's structure and atmosphere. Students used these tangible models as a means of embodied observation to simulate how light plays with space and form.

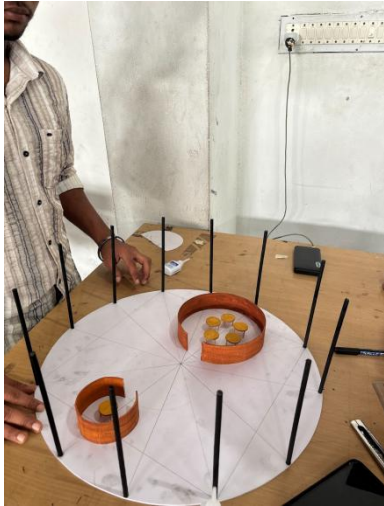


Fig 4.2.1



Fig 4.2.2



Fig 4.2.3

Figure 4.2.1, 4.2.2, 4.2.3 explain the model-making process of the students working on The Vertical Panorama Pavilion.

After completing the model-making exercise, the students created user-experience storyboards, as if they were moving through the pavilion. The narratives documented emotional responses to colour and light and showed that architecture is never entered in some kind of so-called neutral state, but always an emotional, sensory experience. As Pallasmaa (2012) contends, architecture is less a visual than a multi-sensory art, and students' comments betrayed a struggle with this concept. Likewise, Peter Zumthor's (2006) "atmospheres" theory — the atmosphere of a space — was brought to life in students' reactions to the pavilion's constantly changing interior mood.

"As I stood beneath the colored light, I was being brought into another world. The colors would change — at times I was soothed and invigorated. I sensed as though space was alive."

It was surprising to realize how much the color of light could affect how I felt in the model. Even with paper and colored pieces of paper, I felt something change in my mood when I imagined myself inside.

Peer review involved having the students observe one another's storyboards. From this were rich discussions as far as subjectivity was involved in architectural experience, and how they got it that it depended on who the client's feedback was coming from. Some of the users considered the space reflective and quiet, and some of them were energized and provoked, expressing different emotional reactions assigned to the same space, but reactions based on the subject.

"Since my fellow student thought of it as a space of religion, nearly a sanctuary, I had not thought about it at all in those terms. That made me realize how intimate spatial experience can be."



Fig 4.2.4



Fig 4.2.5



Fig

4.2.6

Figures 4.2.4, 4.2.5 and 4.2.6 explain the final outcome of The Vertical Pavilion.

The exercise also forced students outside of the box. Although color and light prevailed, discussions extended to what else would be possible in terms of sensory layers: sound, texture, smell, and even Theoretical taste. This multi-layered awareness reflects an increasing awareness that sensory architecture is not just what is visible, but what is touched, heard, remembered, and imagined.

We think so much about how a room appears, but this led me to think about how it might sound or feel, such as how the heat from the light would feel, or the resonance within the dome. It brought the space full circle in my head.

In doing so, and through this experiential, self-reflective experience, the Vertical Panorama Pavilion was more than an object to be critiqued, but a pedagogical tool — one that asked students to go beyond aesthetics, into experiential, human-centered design.

V. RESULTS

Careful reading of the reflection essays and storyboard stories brought out a collection of themes that bore witness to the value of sensory and phenomenological learning in architecture education. Four knowledge themes that were revealed through the model-making exercise and reflective tasks were Multi-sensory Awareness, Embodied Perception, Emotional Resonance, and Narrative Imagination.



Fig 5.1



Fig 5.2

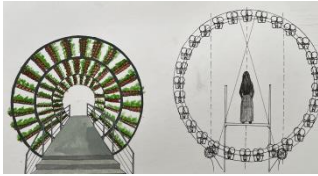
Figure 5.1 showcases a hand-painted interpretation of Olafur Eliasson's The Scent Tunnel, created by one of our students as part of the experiential model-making and sensory exploration exercise. The artwork captures the exterior view of the installation, illustrating its spatial envelope while subtly suggesting the sensory experiences embedded within.

Figure 5.2 presents a hand-painted visual study of The Vertical Panorama Pavilion, emphasizing the sensory interplay of light, color, and circular geometry. This representation also focuses on the exterior view, portraying the pavilion's formal expression and atmospheric qualities.

The following table 5.1 presents a structured synthesis of the key findings across four major themes, which we derived from 28 testimonials from the Students - **Multi-Sensory Awareness**, **Embodied Perception**, **Emotional Resonance**, and **Narrative Imagination** - highlighting student insights, illustrative quotes, and their alignment with relevant architectural and philosophical theories.

Table 5.1. Thematic Observations and Reflections

Section	Theme	Key Observations	Students Testimonials	Theoretical Reference
5.1	Multi-Sensory Awareness (We don't just see buildings - we feel them, hear them, smell them, and interact with them through our whole body.)	Students became aware of non-visual senses (smell, sound, texture, temperature) integral to spatial experience.  <i>Fig 5.1 showcases the students' work on an immersive green tunnel, engaging multiple senses—scent, light, texture, sound, and temperature—beyond vision, highlighting the depth of non-visual perception in architectural design.</i>	"While we were not able to precisely encapsulate the real smells within the model, I was able to envision how the smell would drive my motion..." "The light from glazed panels of glass made me wonder at the sensation of temperature or the sound of footsteps..."	Pallasmaa (2012) – Critique of ocularcentrism and advocacy for multisensory experience in architecture.
5.2	Embodied Perception (Our body is the tool through which we "read" architecture. We don't just look at a space - we walk through it, turn our heads, pause, adjust our steps. All of this shapes how we perceive and remember a place.)	Students reflected on movement, posture, and orientation — their bodies became the instruments of spatial interpretation. 	"I was thinking how I would swivel my head to follow the beam of light on the floor..." "The scented zones drew me forward or held me back..."	Merleau-Ponty (2013) – The body as the primary site of knowing the world.

5.3	Emotional Resonance (It's the feeling a space gives you - whether it's calm, awe-inspiring, nostalgic, safe, or unsettling. It's when architecture goes beyond function and form to touch the heart.)	Emotions such as calm, energy, nostalgia, and joy were triggered by spatial elements like light, scent, and sequence. 	"When the blue light came on my model, I felt that sense of peace — it was as if I was underwater." "The trajectory of the smell transformation...like a journey through different chapters of memory."	Zumthor (2006) – Atmosphere as emotional quality of space; Bachelard (1994) – Poetic image in spatial memory.
5.4	Narrative Imagination (It's the idea that every space tells a Story, and designers (or students) can use their imagination to envision how people live, move, feel, and remember within it.)	Storyboarding enabled narrative thinking, empathy, and subjective engagement with space. Students saw space as Lived and stories. 	"I created a story where a child walks through the pavilion..." "Seeing someone's Storyboard made me realize that one piece of architecture means something different to everyone..."	Koseoglu (2015) – Storytelling as a pedagogical tool for spatial understanding And empathy in design.

VI. DISCUSSIONS

This phenomenology study emphasizes the force of sensorial engagement and narrativity research within architectural education. Through model-making and user-experience board narration of Olafur Eliasson's Scent Tunnel and Vertical Panorama Pavilion, Sigma College of Architecture students traveled through spatial narrating as well as acquired the craft to re-activate the presence of perception, affect, and embodiment in architecture.

6.1 Phenomenology as a Design Lens

The exercise was a further testament to the continued applicability of phenomenology to architectural pedagogy. In the style of Merleau-Ponty and Pallasmaa, the practice set lived experience as the realm of architectural learning. The students were not simply deconstructing spatial form but feeling how the spaces were being negotiated through and sensed. Their writing descriptions revealed that architecture is not an object but a spatial, temporal experience brokered at all times through corporeal and sensory presence.

Instead of wrestling with traditional plans and elevations in isolation, the students were given the poetic character of space — a view habitually withheld from them by formal education. Following Bachelard (1994), memory and imagination are the roots of how we comprehend places. This was experienced in the manner in which the students employed personal memories, emotions, and sensory connections in their story boarding.

6.2 Storyboarding as Experiential Learning

The narrative aspect of the exercise was core to students' interpretation. Using first-person storyboards to tell their models, students were instructed to occupy the spatial experience of their design, to envision pacing, turning, pausing, feeling, and responding. It is this "narrative architectural thinking" that Köseoglu (2015) refers to, where spatial experience is intellectual and emotional.

Also, reviewing each other's storyboards created a feeling of empathic awareness. It helped students understand the multiplicity of architectural interpretation — that one space might be something more than something else based on where the user is positioned. This focus is on the value of designers being sensitive to various bodies, affects, and cultural environments, a skill in client-focused architectural practice.

6.3 Overcoming the Visual Bias in Design Education

Another result of this project was how visually oriented architectural education remains today. The students were having such a hard time with form, composition, and color at the start. The installations — and especially the Scent Tunnel — compelled them to embrace non-visual sensory information like smell, texture, and felt temperature. This submerges students by shattering the concept of architecture as a visual discipline and trying it out as an environment that can be multisensory.

This is in line with Pallasmaa's (2012) *The Eyes of the Skin*, which posits that contemporary architecture frequently disregards the body and confines experience to the realm of appearance. Through experiential learning through models and sensory narration, students might be able to see firsthand how design affects the body, not merely visually but kinesthetically and emotionally.

6.4 Towards a More Holistic Pedagogy

In general, the book appeals to more integrative, experiential education in architecture. The traditional drawing and drafting must be balanced against bodily, imaginative, and reflective processes sensitive to human experience. These exercises constitute a transdisciplinary design practice, an art, philosophy, psychology, and narrative-theory-generative practice.

Besides, Olafur Eliasson's installation works were excellent case studies since they are the meeting of art and architecture, space, and atmosphere. They do not toss meaning but encourage perception, reflection, and reappraisal, like in the students' models and stories.

The Study suggests that architectural education learns a great deal from experiential art installation, both visually as hunches and as spatial epiphanies, when it comes to knowledge in terms of atmosphere, temporality, and memory.

VII. CONCLUSION

This study investigated narrative and sensory aspects of constructing space through a phenomenological experience of Olafur Eliasson's Scent Tunnel and Vertical Panorama Pavilion. Recreating these works as model-making and storyboarding tasks, 28 Sigma College of Architecture students completed a reflexive design task focused on bodily experience, multisensory perception, and spatial narrative.

Students' experiences and accounts confirm the relevance of phenomenology to architecture education. Apart from visual comprehension, the students also learned to comprehend how architecture is lived — the way it smells, sounds, and moves. Pedagogy of experience helped them to be sensitive to the corporeal, affective, and mnemonic at the heart of articulating the built environment. As the students entered their envisioned spaces, they discovered that architecture is more than a list of materials or forms, but a poetry of moods and feelings that change with each user and moment.

Additionally, the project proved the utility of narrative strategies for learning design. Storyboarding prompted students to imagine themselves in a first-person and empathetic role, as users, to foresee some of the reactions to space. This made them attentive to clients' needs and accentuated the subjectivity of experience in space, the fundamental competence in human-centered design.

Adding art installations to the architecture course of study — in this instance, interdisciplinary ones — expands students' visions of architecture's expressive and atmospheric potential. As Eliasson's work illustrates,

space can be redemptive, not merely because of what it contains, but because of what it evokes. Employing model-making and storytelling methods here allowed students to value architecture as an expressive and empathetic medium, one that can produce experience in the way that architecture does.

In the coming years, these kinds of phenomenological and narrative exercises need to be institutionally introduced into design schools. They offer not just creative capability and technical proficiency but also critical sensitivity to the way architecture engages with the senses, body, and mind. In doing this, they build future architects who are sensitive to the human dimension of design—architects who grasp space not merely as an issue of appearance but as an issue of how it feels to be in.

VIII. ACKNOWLEDGMENT

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