

Original Article

# Silence as the Essential Meaning of Sound Experience in Architecture (Case Study: Santa Maria Chapel of Bethlehem, Lembang, West Java)

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**Abstract** - Motivated by the desire to elevate the role of architecture for humans as active participants in the architectural process, this research aims to address the shortcomings of modern architecture, which increasingly becomes objectified. Many architectural products have turned into detached objects, separate from human experience, both bodily and mental. Furthermore, there is a notable loss of sensory experience, particularly auditory experience, as architecture often prioritizes ocular-centrism. Empirically, this phenomenon is prevalent, with architecture frequently imposing itself on its context—like a giant striving to showcase the most dominant form. To counter this obstructive influence, a complementary perspective is required—an experiential lens that incorporates not only visual perception but also auditory experiences. Such an approach seeks to create meaningful, holistic experiences within the spatiality of architecture. Using the case study of the Chapel of Santa Maria of Bethlehem in Lembang, West Java, this research employs a descriptive phenomenological method to uncover the essential meaning of sound experiences as subjectively experienced by humans. This method focuses on exploring and describing how individuals perceive sound in architectural spaces. By achieving the objective of revealing the core essential meaning of sound experiences in architecture, this study contributes to the enrichment of phenomenology in architecture, providing valuable insights for both theoretical exploration and practical application.

**Keywords** - Meaning, Sound experience, Architectural phenomenology, Descriptive phenomenology.

## 1. Introduction

In contemporary architectural discourse, the focus has long been on form, function, and representation, often neglecting the sensory dimensions that shape human experience. Architecture, though inherently multisensory, has been dominated by an ocular-centric perspective that prioritizes visual aesthetics and geometric composition [1, 2].

This emphasis on the visual can be traced back to the theoretical foundations laid by Figures such as Leon Battista Alberti, who formalized perspective in architecture, and Le Corbusier, who viewed buildings as plastic objects to be measured and perceived through sight [1, 3-5]. However, the overemphasis on the visual has left other crucial aspects, such as sound and silence, underexplored in shaping architecture's spatial and existential qualities.

Silence, particularly in sacred spaces, serves as more than just an absence of sound; it is an active presence that defines spatial perception, enhances contemplation, and fosters transcendence. Religious architecture has long

embraced silence as a medium to facilitate spiritual engagement, but its role in architecture is often overlooked or reduced to a mere acoustic consideration. The Santa Maria Chapel of Bethlehem in Lembang, West Java, provides a compelling case study investigating how silence shapes architectural experience beyond conventional visual and acoustic parameters. Nestled within a monastic complex where silence is deeply embedded in religious practice, the chapel presents an opportunity to examine how sound—or the deliberate absence of it—interacts with spatial awareness and emotional depth.

Despite a growing interest in phenomenology and embodied experience in architecture, the role of sound and silence remains largely unexplored. Previous studies have predominantly addressed acoustics quantitatively, focusing on optimizing sound within spaces such as concert halls and auditoriums. Yet, architecture extends beyond physical measurements; it involves an intricate interplay of perception, memory, and spatial consciousness. Juhani Pallasmaa [1] critiques what he calls "retinal architecture,"



where buildings are consumed visually but fail to engage the full spectrum of human senses. Similarly, theories of aural architecture proposed by Blesser and Salter [6] argue that sound fundamentally alters spatial perception, yet little has been done to extend these ideas into a nuanced understanding of silence as an architectural force.

Compared to existing research, which often examines acoustics through the lens of sound engineering and numerical assessments, this study takes a phenomenological approach, focusing on the experiential and existential dimensions of silence. While previous studies, such as those by Blesser and Salter, have emphasized how sound defines spatial perception, none have extensively explored silence as an active architectural component.

Furthermore, research by Pallasmaa has highlighted the shortcomings of ocular-centric architecture but has not deeply examined how silence can counterbalance this visual dominance by enriching spatial awareness.

This study builds upon these foundational works by proposing that silence is not merely the absence of sound but a generative architectural presence that fosters spatial meaning, contemplation, and transcendence.

This study delves into the essence of silence as an architectural element, positioning it not as an absence but as a significant and generative presence. This research moves beyond traditional notions of acoustics and soundscapes by examining how silence fosters spatial awareness, evokes memory, and enables transcendence. It employs a descriptive phenomenological approach to reveal how individuals experience silence within architectural spaces, using Santa Maria Chapel as a lens to understand the profound interplay between sound, space, and human perception.

Through a detailed phenomenological investigation, this study aims to expand the discourse of architectural phenomenology by demonstrating that silence is not simply an auditory void but an experiential medium that defines and enhances spatial consciousness. It bridges theoretical discussions with lived experience, illustrating how silence transforms how humans interact with and understand space when considered an integral part of architectural design. This research contributes to both architectural theory and design practice by rethinking silence as an essential architecture component, advocating for a more holistic, multisensory approach to space-making that extends beyond the visual realm.

## 2. Materials and Methods

### 2.1. Santa Maria Chapel of Bethlehem, Lembang, West Java, Indonesia

The Santa Maria Chapel of Bethlehem was selected as a case study due to its significant influence on the sound

experience of both users and observers in architecture. Unlike conventional public buildings, the chapel offers a unique auditory environment where silence and sacred sounds actively shape spatial perception. This makes it an ideal subject for examining how sound and silence contribute to architectural meaning.

Beyond its public function, the chapel's sacred role deepens the phenomenological experience of sound in architecture. Religious spaces have historically been designed to amplify sacred sounds—from the resonant echoes of chants to the hushed reverence of prayer.

In this setting, silence is critical in reinforcing spiritual engagement, allowing worshippers to immerse themselves in an aural experience that extends beyond simple acoustics to existential and transcendental meaning.

The unification of visual and aural elements strengthens the sacred atmosphere of the chapel. As an active religious space, the chapel hosts liturgical Eucharistic processions and daily prayers, emphasising the importance of auditory perception in spiritual rituals.

The deliberate design of the chapel amplifies sacred sounds while preserving silence as an essential architectural feature, aligning with the research focus on the relationship between sound experiences and spatial perception.

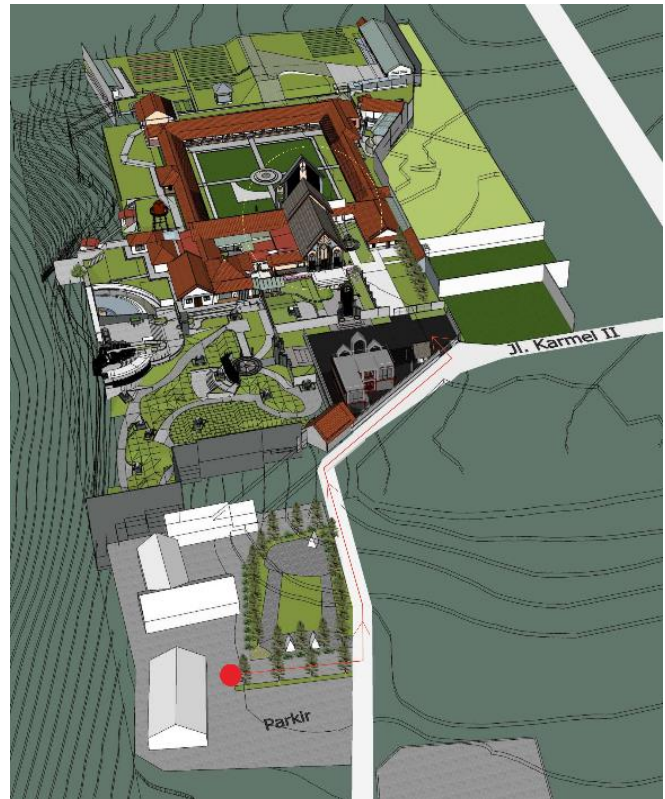


Fig. 1 Exterior of santa maria chapel of bethlehem

Additionally, the chapel's location within a monastery complex enhances its unique spatial and acoustic qualities. With both indoor and outdoor configurations, the complex fosters an immersive spiritual atmosphere that integrates natural sounds, reinforcing the harmonization of built and natural environments. The sustainability of the chapel's function, having remained operational for over 60 years, ensures its continued role as an observable and researchable site for existential sound studies in architecture.

Known locally as the Karmel Church of Lembang, the chapel holds deep cultural and religious significance as the only Catholic church in Lembang District, West Bandung Regency. Managed by the Order of Discalced Carmelites (OCD), a monastic order known for its contemplative silence, the chapel reflects an architectural philosophy that prioritizes spiritual serenity through both auditory and visual design. Its secluded location, distanced from the noise of urban life, ensures the preservation of silence as an intrinsic part of its religious practice.

The chapel's historical evolution further adds to its architectural and cultural richness. Built-in 1941 alongside the establishment of the OCD monastery, the chapel has undergone multiple transitions, including serving as a military and police barracks from 1942 to 1963 before resuming its religious function. Its restoration and reconstruction in 2004, under the design direction of architect Widjonarko, reflect its evolving role in accommodating the needs of a growing Catholic community. Spanning an area of 192 square meters, the chapel provides seating for approximately 196 worshippers, maintaining its status as a symbol of sacred silence and auditory awareness in architecture.

This case study offers a compelling foundation for analyzing the intersection of sound, silence, and architectural meaning, building upon previous studies in architectural phenomenology while extending the discourse to explore silence as a transformative element in spatial experience.

**2.2. Research Method**

This research utilizes the overarching philosophy framework of Don Ihde [7] from his work *Listening and Sound*, which applies a detailed reflection on the phenomenological investigation. According to Ihde [7], the main goal of phenomenology is to rediscover, appreciate, and embrace the fullness, richness, and complexity of sensory experiences. Ihde emphasizes the unity of the senses as the foundation of the phenomenological approach, considering experiences as bodily and comprehensive (*global experience*). Sensory isolation is a belief embedded within the tradition of empirical science. As stated by Ihde [7], adopting a phenomenological approach, hearing does not isolate the sense of hearing; it represents a relative focus on a dimension of global experience. Sound penetrates and

involves the body that experiences it. Hearing sound is not limited to the ears but also resonates through bones and the stomach. The movement and rhythm born from sound animate the body [10].

According to Ihde, the experience of hearing encompasses all types of sounds in the world. The starting point is the everyday auditory awareness of sounds produced by objects. The sounds of objects capture human attention, inviting us to listen. Humans can differentiate and identify the source of various sounds with great precision. By tapping or striking objects, humans can distinguish and reveal an object's material, size, dimensions, solidity, or emptiness. Hearing can reveal shape, surface, and spatiality. The sound of high heels on tiles or the squeak of a door reveals the encounter of two materials. Clapping, shouting, or speaking can evoke a sense of dimensionality, height, and spatial awareness [7]. This kind of revelation goes beyond the physical attributes of sound and requires imagination to transcend the sound itself, a concept referred to as "beyond sound" by Callaghan [8, 9].



**Fig. 2 Floor plan, Front view, and Interiors of Santa Maria Chapel of Bethlehem**

The phenomenological approach is applied in this research, referring to Don Ihde's philosophy, which draws on two key foundational ideas from the pioneers of

phenomenology: Husserl's concept of intentionality [10, 11] from an epistemological perspective, emphasizing descriptive experience, and Heidegger's existential thought from an ontological perspective.

This research focuses on exploring descriptive experiences, specifically how human auditory experiences in architecture are used to uncover the meaning of sound in architectural spatiality. The essential meaning of sound experiences in architecture is revealed through phenomenological interpretation.

The framework used was the "first phenomenology" applied by Don Ihde, which encompasses the philosophy of presence and aims to understand "the things themselves," revealing and describing the structures and potential essences that emerge in perceptual experiences. Thus, researchers and participants had to set aside preconceptions by suspending their everyday beliefs about the nature of the object in question, a process referred to by Husserl as *epoché*. A crucial aspect of the first phenomenology is the relationship between the experienced object and the consciousness that seeks to understand it. This relationship is a process rather than a fixed connection [7].

In Don Ihde's philosophy, phenomenological interpretation to uncover essential meaning in architecture is applied through the second phenomenology, namely hermeneutic phenomenology. This approach incorporates the understanding that experiences cannot be observed in isolation or separated. In *Being and Time*, Heidegger [12] asserted that "the meaning of phenomenological description as a method lies in interpretation." Hence, experiences must be understood and interpreted in terms of the architectural context.

Phenomenology in architecture is capable of tracing and understanding the relationship between humans and the place or environment as a space for activity and exploring the complexity of its interconnected dynamics. Phenomenology in architecture opens new and rich understandings of the architectural process. Every action in the architectural process is closely connected to the actions that precede and follow it, influencing the entire architectural process.

Using architecture with full awareness and embodiment in experience can reveal the meaning of an experience accompanied by understanding. Understanding architecture, based on the experience of use, will provide benefits for the act of creation. Thus, the result of the act of creation, originating from understanding, will support the process of use and will again be able to create meaningful experiences. The act of creating architecture in the architectural process—reading architectural designs—involves two steps: making an in-depth description of an architectural design and positioning the act of creation as a step of interpretation. The

interpretive step is necessary because architecture is metaphorical and analogical. Therefore, the descriptive step must complement or be complemented by the interpretive step, and both steps must support each other.

Intentionality is needed to explore descriptive architectural experiences, where the intimacy between the subject and the object is brought together. The object is always seen together with the subject and cannot be understood alone. In other words, the subject means nothing without the object, and vice versa [13]. This shows how humans (participants and researchers) view the object of study and how the object of study presents itself to humans as researchers and participants. According to Dalhberg et al. [14], manifesting intentionality means paying attention to how the object of study is recognized, felt, experienced, understood, and expressed.

In addition to intentionality, the concept of embodiment is also crucial in uncovering the descriptive meaning of experiences. The concept of lived embodiment, as highlighted by Dahlberg et al. [13-16] and based on Merleau-Ponty's philosophy, is employed in the descriptive method by involving the full range of sensibilities interacting with the body when experiencing architectural phenomena.

The descriptive stage is operationalized through a series of practical steps: First, read all interview transcripts to gain a comprehensive understanding of the experience. These transcripts serve as the initial data, containing human experiences derived from the direct experiences of participants and researchers. The second is utilizing units of meaning to categorize significant experiences. Third, these units of meaning are transformed into architectural headings as benchmarks for examining properties and compositions related to sound, where the experience of meaning is discovered. Fourth, identifying specific structures and ultimately deriving the core structure of the experiential field within a phenomenon (essential meaning).

The search for meaning necessitates the exertion of imagination [17]; the frame of reference is the phenomenon viewed from different perspectives, positions, roles, and functions. Through imaginative variation [18-20], a structural description of the experience emerges. The goal of imaginative variation is meaning-meaning that can potentially make what was initially absent become distinctly visible. Thus, the essence of reality or the phenomenon is revealed, representing an intuitive integration of the foundational elements of both textural and structural descriptions into a statement that encapsulates the entire phenomenon [21].

The experiences of researchers and participants are configured to create a narrative text, connecting the entire scope and anatomy of the architectural design. Movement

within the narrative experience on the chapel's site (outdoor spaces) reveals forms related to sound and progress toward the building by observing its enclosing elements, structural features, overall ornaments, and materials. The exploration and investigation of essential experiences within the architectural narrative of the study object aim to trace the architectural properties and compositions that influence and are influenced by sound. This process can potentially uncover existential meaning within participants' experiences comprehensively and profoundly.

This phenomenological research involves four participants who have direct involvement in the life of the OCD Carmelite Monastery: a priest who leads retreats, a layperson actively engaged in the chapel, a nun with a structural role, and a parishioner living near the monastery. Participants were selected based on their proximity to the experience, credibility, and ability to provide rich information, with the number determined by data saturation rather than quantity.

The primary data collection methods include in-depth interviews [22] and observations to holistically understand their lived experiences. In phenomenological research, the

goal of interviews is to describe the meaning of a phenomenon as experienced by everyone. Giorgi, as cited in Beck [19], explains that one of the key criteria for phenomenological interviews is that researchers must provide as complete and in-depth a description as possible of the experiential field directly encountered by participants. Since this study focuses on direct human experiences characterized by intersubjectivity, the relationship between the researcher and the participants and the researcher's connection to the phenomenon (case study) being analyzed plays a crucial role in ensuring a comprehensive understanding of the subject matter.

Dahlberg et al. [15] and Van Manen [17] Van Manen (2014) both assert that researchers must strive to maintain a direct and close relationship while creating a reflective distance.

Additionally, Dahlberg and Van Manen, as cited in Beck [19], emphasize the importance of openness in collecting data to enrich the horizon of experience. Uncovering the meaning of auditory experiences requires sensitivity, making the researcher's role in helping participants recognize and explore auditory experiences crucial.



Fig. 3 Descriptive stage analysis chart (modified from Dalhberg, Giorgi, and Colaizi phenomenology method)

The researcher selected four participants directly involved with the Santa Maria Chapel of Bethlehem who could serve as credible and comprehensive information models. In phenomenological research, the number of participants is not fixed, nor are there strict rules specifying the required amount. Baker and Edwards [23] argue that focusing on quality rather than quantity is preferable. Similarly, as cited in Beck [19], Van Manen stated that there is no specific or standard sample size. The number of participants is determined based on data saturation achieved through the dynamic and rich information each participant provides.

In the descriptive method, analysis is conducted based on the descriptions interpreted to uncover and formulate the core structure of the meaning of sound experiences in architecture. The descriptive method refers to the phenomenological methods of Amadeo Giorgi, Paul Colaizzi, and Karin Dahlberg.

The foundation of the method used in this descriptive analysis stage is the phenomenological descriptive method by Amadeo Giorgi, Karin Dahlberg and Paul Colaizzi. Giorgi [19, 24], Colaizzi [25] and Dahlberg [16] focus on uncovering the true meaning of participants' experiences. The elaboration of each participant's experience units in detail aims to produce the essential structure of the meaning of the experiences generated.

The steps of the descriptive phenomenological method applied in this research (Figure 3) are: First, collecting and writing down participants' experiential data. Second, a general understanding of the participants' descriptions and complete textual descriptions are read and listened to repeatedly to obtain a comprehensive understanding. Third, searching for and determining meaning units I, these meaning units are the result of creating original descriptions of the phenomenon. Each meaning unit does not stand alone; every meaning is interrelated and needs to be understood as a part of the whole [19, 24].

Fourth, transforming meaning units I to obtain themes. After identifying the meaning units from a transcript, these units are transformed into expressions that are audibly and visually sensitive through the use of free imaginative variation [17, 20, 26]. Fifth, this stage is reflective and confirmatory; at this stage, the participants' reflective attitudes are evoked so that the descriptions of the experiences produced become richer and more conscious. Sixth, further understanding of participants' descriptions; this step is a deep understanding of the results of the interviews, confirming themes and the reflective attitudes of participants. Seventh, determining meaning units II; at this stage, the researcher adopts auditory and visual perspectives, meaning the researcher searches for shifts in auditory and visual meaning. The researcher also recalls previous themes and

looks for relationships between meaningful parts related to sound experiences. Eighth is the transformation of meaning units II to determine specific structures. In this step, the researcher revisits each meaning unit to reveal the auditory and visual implications of the description of the experiential field. Thus, the essence of the phenomenon will be uncovered.

At this point, through free imaginative variation, the researcher will modify various aspects of the phenomenon within the horizon of imagination. The aural architecture language and the lived dimension of the phenomenon are revealed within the specific structure. Ninth, the formulation of a general structure. Based on the specific structures uncovered from each participant's experience, the general structure of the meaning of sound experiences in architecture is formulated.

### 3. Result and Discussion

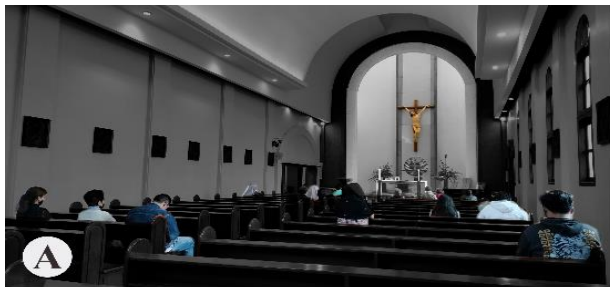
The detailed descriptions of each participant's experiences (P1, P2, P3, and P4) contain knowledge about their experiences during activities in the Chapel of Santa Maria of Bethlehem. The descriptions generated from the interviews represent an exploratory interaction process to obtain rich and nuanced descriptions. According to Høffding and Martiny [27], in such interactive encounters, experiences are revealed as a process based on the circulation of memory, reflection, description, and questions during the interviews.

The descriptions of each participant's experiences that have been elaborated are used to identify relevant meaning units regarding the sound experiences in architecture. The phenomenological attitude (imaginative variation) is applied to transform meaning units, bringing the descriptions to life and exploring the meaning within the meaning units. Thus, the transformed meanings can be formulated to derive themes. The themes derived from the first to fourth stages were reconfirmed, allowing space for reflection among the participants and enabling them to deepen their experiences with the chapel as an object within the framework of its functions and activities.

In their experience at the chapel (Figure 4(a)), P1 sat in the congregation's seating area at the back, facing other congregants all directed toward the sanctuary. Before leading the Eucharistic celebration and during the Breviary prayer, P1's gaze was drawn to the stillness of the cross embedded on the back wall of the sanctuary. The stillness of the cross became the center of inner consciousness, reminding P1 of the person of God. When preparing to lead the Eucharistic celebration, P1 experienced a distinct ambience transitioning from the sacristy to the sanctuary space. In the sacristy, P1 felt not yet in a sacred space. For P1, there was a boundary, a pause, a rest, and a waiting period to feel a different silence. Between the sacristy door and the chapel space, there was a threshold of distinct silence.

**Table 1. Formulation of transformation of meaning units and themes from participant 1**

Transformation of Meaning Units (1)	Themes
<p>In the Chapel of Santa Maria of Bethlehem, P1 perceives the meaning of silence that enables a fuller self-reflection. P1 also interprets silence supported by elevation, which allows them to transcend toward sanctity.</p>	<ul style="list-style-type: none"> <li>- Silence guides an individual to self-awareness.</li> <li>- The height of the space imbues silence with a dimension of sanctity.</li> <li>- Silence navigates the path toward the sacred.</li> <li>- Silence invites vertical dialogue.</li> </ul>
<p>P1 discerns that silence fosters relationships with the congregation present. Within the chapel space, P1 discovers the meaning of silence as an immersive experience, pulling them into the dimension of sound.</p>	<ul style="list-style-type: none"> <li>- Silence offers empathy and dialectics.</li> <li>- Silence invites horizontal dialogue.</li> <li>- Silence intensifies experiences.</li> </ul>
<p>Inside the chapel, P1 finds that silence enables them to immerse themselves in the realm of the soul. P1 also uncover the meaning of silence that draws their awareness toward grandeur.</p>	<ul style="list-style-type: none"> <li>- Silence invites vertical dialogue.</li> <li>- Silence navigates the way toward grandeur.</li> </ul>
<p>P1 perceives the meaning of silence as carrying auditory imagery that signals significance. P1 perceives the sound of the bell as carrying them into memories of sanctity and finds silence gently infiltrating natural crevices.</p>	<ul style="list-style-type: none"> <li>- Quite sounds bring forth signs and memories.</li> <li>- Silence calls and invites entry into sanctity.</li> <li>- Sounds within silence are responsive and communicative.</li> </ul>
<p>P1 interprets silence as fostering relationships with their congregation. Additionally, P1 perceives the meaning of silence as forming bonds of communion and fraternity.</p>	<ul style="list-style-type: none"> <li>- Silence offers empathy and dialectics.</li> <li>- Silence provides a sense of communion.</li> </ul>



**Fig. 4 Visualization of the Meaning Unit Transformation of P1's Experience Before Entry to The Sanctuary**

P1 became aware of their bodily presence at the sanctuary, which was different from when aligned with the congregation (Figure 4(b)). On P1's journey to the sanctuary, the sense of togetherness was still palpable, as though the congregation was escorting P1 into the throne of sanctity-the sanctuary space. Upon entering the sanctuary area, P1 focused on a moment of holy silence and intense grandeur. At this moment, P1 perceived a connection with many congregants, each in their silence, guiding them toward sacred space-referred to as interconnectional sacred progression. The silence along this journey navigated and drove the dynamism towards the sanctuary space.

After passing the first pew in the front section of the chapel, it was time for the body to pay respect by kneeling before the sanctuary. P1 focused their attention on a solid, glowing, box-shaped figure. This box, which is used pastorally to store the Body of Christ, is known as the tabernacle-a sign of Christ's presence and the throne of the Blessed Sacrament. P1 perceived the meaning of centrality and majesty in the progression toward the tabernacle, which reminded them of Christ's love that grows through the devout act of the Eucharist (Figure 5(a)). There was joy in encountering the tabernacle when approaching it. P1 experienced the essence of a true meeting with Christ through the tabernacle.



**Fig. 5 Visualization of the Meaning Unit Transformation of P1's Experience in The Sanctuary**

This relationship formed a strength that peaked during the reception of Christ through Holy Communion. The connection with Christ became increasingly perfect and intimate, especially when P1, as a priest, shared Christ's Body with the congregation and the Carmelite sisters during the communion ritual. Thus, the meaning grasped by P1 during the journey to the sanctuary was a sense of directedness that evoked memories of the Eucharistic feast—a communal pilgrimage nourished by the radiant silence of the tabernacle. The Carmelite OCD sisters held their Eucharistic celebrations separately from the rest of the congregation. The room “koor” was the designated space for the sisters to

conduct all prayers and masses. A profound sense of peace and serenity filled the air while listening to the sisters' chants, prayers, and hymns. The sensation of silence is transmitted, and P1 captures the meaning of connectedness with the sisters both when the door to the “koor” is closed and open. The aura of silence from the choir room flows, blowing with the wind towards the chapel (Figure 5(b)). The visualization of the sisters wearing brown robes, silent, praying conveys the energy of silence that sanctifies. From the first to the fourth steps, the themes generated above are then given space for confirmation and reflection, allowing each participant to experience the chapel as an object more deeply.

**Table 2. Formulation of transformation of meaning units and themes from participant 2**

<b>Transformation of Meaning Units (1)</b>	<b>Themes</b>
<p>In the chapel, P2 perceived the meaning of silence, pulling them into a sacred space and navigating them into a sense of awe, surrender, fear, and reverence toward the Divine. P2 experienced the meaning of silence that gently seeped through the chapel's transparency.</p>	<ul style="list-style-type: none"> <li>- The silence that navigates toward sanctity</li> <li>- Silence invites vertical conversation.</li> <li>- Silence is a threshold – a moment of waiting (pause)</li> </ul>
<p>The silence upheld by the height of the sanctuary space drew P2's feelings of humility toward something majestic. Beyond the height dimension, the chapel's elongated space imparted a sense of grandeur within the silence. The presence of sounds within the chapel, particularly natural sounds and the prayers and hymns of the sisters, brought meaning for P2 regarding silence as a movement toward the sacred. P2 found that silence encouraged a connection with natural sounds, contributing to the act of prayer. P2 recognized the meaning of quiet sounds in the chapel, drawing the heart into holiness for a deeper intimacy with God.</p>	<ul style="list-style-type: none"> <li>- The height and length of the space provide a perspective of grandeur and magnificence within silence.</li> <li>- The silence that navigates toward the sublime.</li> <li>- Sound within silence is a dialogic encounter</li> <li>- Silence invites vertical conversation.</li> </ul>
<p>It was revealed that silence evoked the spirit of the “koor” room, guiding P2 into a profound serenity. P2 captured the meaning of silence as something that brought warmth, driving them closer to holiness.</p>	<ul style="list-style-type: none"> <li>- Silence offers a dimension of reverence to the spirit of spirituality.</li> <li>- Silence brings warmth.</li> </ul>

P2 embarked on a journey along an upward, slightly inclined path from the public parking lot. P2 felt he was being gradually led into silence, though not complete silence. Slowly, his steps continued, and the silence seemed to guide him toward the cross at the top of the chapel building (Figure 6(a)). Positioned at the building's peak, the cross was perceived by P2 as a call and invitation from God into the sacred realm. Through this experience, P2 grasped the meaning of a dialogical relationship with God's presence, represented by the cross above the building. Silence guided him toward the sublime and mystical.

When P2 reached the first gate of the OCD sisters' monastery complex, P2 could see the cross at the top of the chapel building again. (Figure 6(b)). The cross now appeared larger and closer to P2. Its presence in the chapel building offered a sacred perspective in the silence.

As P2 approached the main gate of the chapel, the cross at the top of the building was no longer visible. Instead, the view was replaced by the crucifix of Jesus hanging in the

sanctuary inside the chapel (Figure 6(c)). The hanging cross captured P2's attention through the transparent glass above the chapel door.

As P2 passed through the chapel's main entrance, the silence became palpable. Upon encountering the stillness of the statue of Saint Joseph Sleeping, P2 was moved to pray. The profound natural atmosphere enveloped P2, fostering a sense of natural silence through the sounds of birds, insects, and the wind rustling the leaves. This connection formed a relationship with the natural elements, gently guiding P2's steps into the chapel.

The landscape arrangement provided a sense of tranquillity in P2's experience, especially as he descended the steps leading into the valley of prayer (Figure 6(d)). P2 felt as though he was being drawn into an even deeper atmosphere of prayer. Just before entering the chapel, P2's gaze focused on the stillness of the hanging Crucifix of Jesus in the sanctuary (Figure 6(e)). This brought P2 into a reverent atmosphere, preparing them to pray. The hanging crucifix



was large in dimension and installed high on the sanctuary wall. Its size appeared mystical to P2, especially enhanced by the sunlight directly penetrating the crucifix.

The hanging crucifix on the upper back wall of the sanctuary made P2 feel a closer, more intimate connection with God, who is sacred and majestic. The crucifix drew him into the mystery of mysticism and grandeur, imparting a sense of silence that freezes, directs, and moves him toward sacredness. The height of the building created an atmosphere of majesty for the worshipers. This grandeur inspired P2 to offer his prayers and praises to Jesus Christ with full fervour, much like smoke rising from a fire toward the sky. The sensation of the room's height also helped P2 imagine and reflect more deeply on his experience during the Eucharistic celebration.

The sanctuary in the Chapel of Santa Maria of Bethlehem became the focal point for the congregation, as it was clearly visible from any seating position within the chapel. This was because the sanctuary was positioned higher than the seating for the congregation. The simplicity of the sanctuary's form, supported by the surrounding silence, drew P2 into reflecting on the mystery of the redemption of Jesus Christ. Thus, the silence fostered a meeting and vertical conversation with the divine.

P2 experienced an auditory sensation during the Eucharistic celebration at Bethlehem's Chapel of Santa Maria. One of these was the sound of bells, whose vibrations moved P2 to begin the celebration and to welcome Jesus Christ. Another unique auditory sensation was the sound of prayers, praises, and hymns sung by the sisters. Separated from P2 and the congregation, the sisters were positioned in the "koor" room at the front left side of the chapel. P2 felt very calm and peaceful whenever he listened to the sister's prayers, praises, and hymns. Within the Chapel of Santa Maria of Bethlehem, natural sounds could also be heard (Figure 6(f)), such as the breeze, the rustling of leaves, the chirping of birds, squirrels, and various types of insects. This colorful symphony of sounds accompanied P2 throughout the

Eucharistic celebration. P2 felt a profound connection with the natural surroundings while inside the chapel.

The steps from the first to the fourth generated themes that were confirmed with each participant. This process was conducted to deepen the participants' reflective attitudes in experiencing the chapel as an object within the context of function and activity.

P3 performs ritual prayer and the celebration of the Eucharist in the choir space, which is separated from the chapel by a folding door. During these rituals, the space holds an extraordinary sense of silence. The simplicity of the space further enhances this silence.

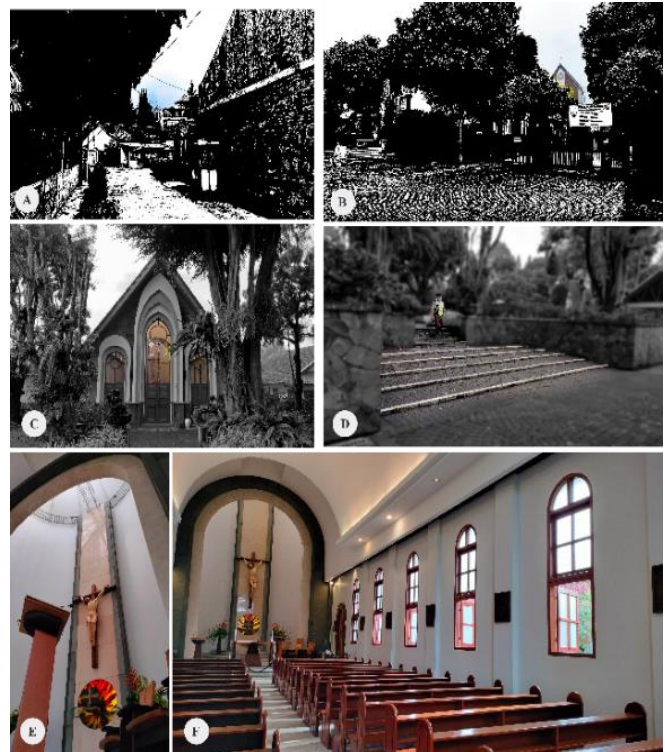


Fig. 6 Visualization of the Meaning Unit Transformation of P2's Experience

Table 3. Formulation of transformation of meaning units and themes from participant 3

Transformation of Meaning Units (1)	Themes
P3 perceives the meaning of silence as drawing them into an inner space, where the sense of warmth, akin to being at home, offers comfort similar to that of family. The silence, aided by simplicity, enables P3 to focus more deeply on Sister's love for God.	<ul style="list-style-type: none"> <li>- The silence invites vertical conversation.</li> <li>- Silence embodies a manifestation of presence.</li> <li>- The silence offers a warm embrace.</li> <li>- The silence navigates divine closeness.</li> </ul>
P3 understands that the sound of the bell calls and draws him into holiness. The resonance it creates inspires a sense of humanity that brings P3 closer to God.	<ul style="list-style-type: none"> <li>- Silence that resonates toward transcendental holiness.</li> <li>- Silence that energizes and activates.</li> <li>- Silence invites vertical dialogue.</li> </ul>
P3 perceives the meaning of silence through a simple familial relationship with God. In the "koor" space, P3 discovers the essence of silence that draws into horizontal conversation. Silence offers a communal encounter between P3 and fellow sisters.	<ul style="list-style-type: none"> <li>- Silence invites vertical dialogue.</li> <li>- Silence offers empathy and dialectics.</li> </ul>

P3 felt that the silence in the choir space evoked the concept of a home—a home analogized as a fellowship of God’s friends, a simple and humble abode. This space fosters a sense of togetherness and communion through praying, singing, and praising God together.

P3’s journey toward the “koor” space awakened an awareness of longing and the need to be present and meet with God. In this space, P3 experienced a profound sensation of silence that drew them into sacredness, full of simplicity. The shape and enclosure of the simple space fostered a warming silence shared among the sisters as a community of prayer.

P3 felt that, in addition to being a space of familial and fraternal relations among the sisters, the “koor” space was also centered on Christ as the leader of this home. For P3, the Cross served as the central orientation of the home, where silence offered a dialogical and empathetic dimension. The stillness of the tabernacle and the Cross within the choir space immersed P3 in silence (Figure 7(a)). P3 felt that the modest dimensions of the choir space created a sense of togetherness and community, fostering a warm atmosphere. The warmth that brought silence was also felt by P3 in the choir space, devoid of vibrant colours. The space was simple in its colour scheme and decoration, with shades of brown and cream dominating the area (Figure 7(b)). Furthermore, the silence, supported by the simple form, dimensions, and colours of the choir space, embraced the individual within the warmth of the community. This silence offered a dialogical conversation.

The simplicity of the choir space, regularly used by the sisters during their activities, is defined by a folding door (Figure 7(c)). This door marks the boundary between two lives: the monastic life of the Carmelite sisters and the church life, represented by the pilgrims in the congregation. The sensation of openness and closure creates a contrasting experience. Openness cultivates dynamism and enriches

relationships, building connections not only among the sisters but also with the congregation and the priest leading the Eucharistic celebration. This silence does not confine but instead opens up possibilities for encounters that move the spirit. This movement draws the individual into fellowship and closer to the divine.

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Fig. 7 Visualization of the Meaning Unit Transformation of P3’s Experience

Table 4. Formulation of transformation of meaning units and themes from participant 4

Transformation of Meaning Units (1)	Themes
P4 captured the meaning of silence and stillness as elements that drew into a prayerful atmosphere.	The silence that invites vertical conversation
P4 found meaning in the sound of the bell, which drew them into an echo of holiness.	Silence calls and invites one to enter the dimension of holiness.
P4 captured the meaning of silence as it gently sneaks through natural crevices, drawing into a more devout prayer atmosphere.	The sound within the silence invites vertical conversation and navigates toward peaceful tranquillity.
P4 perceives silence, supported by the resonance of the chapel space, which guides toward the beauty of sound that connects to holiness.	Silence echoes toward the sacred and offers vertical conversation.
Silence, supported by the mysticism of the chapel, pulls P4 into a deeper prayer atmosphere. P4 captures the meaning of silence, supported by the dimensions of the space, which draws into sanctity and holiness.	Silence invites vertical conversation in the mystical dimension. Silence resonates with sanctity and holiness, wrapped in the dimension of beauty.

The themes revealed from the transformation of meaning units will serve as the basis for reflection in the second interview. This process is expected to provide a foundation for describing P4's experiences more comprehensively, formulating richer meaning units, and exploring the experience of silence in architecture more profoundly. P4 experienced silence and stillness in the chapel and felt that the chapel space greatly supported prayer activities. This fostered a sense of deep closeness and an invitation for conversation between P4 and God. The chapel's enclosed space offered a dimension of sanctity for P4, enabling navigation through a peaceful atmosphere and focusing more on God's presence. The enclosed nature of the space, reflected in its form and the solid materials used (Figure 8(a)), made it feel particularly intimate and interwoven with P4 during prayer activities.

The enclosure of the space creates a sound that resonates, with the echoes stirring P4's memory of God's presence. Silence is further supported by the chapel's vertical dimensions (Figure 8(b)), which guide P4 into a mystical sensation of sacredness. Additionally, this silence invites a relationship through the memory of God's vertical presence.

The mystical sensation experienced by P4 was symbolized by Jesus' presence in the Chapel of Santa Maria of Bethlehem, offering blessings to the congregation in prayer. Before and during the Eucharistic celebration, the hanging cross served as a focal point that captivated P4's attention. Through the cross on the back wall of the sanctuary space, P4 felt both awe and closeness to Jesus. The cross drew P4 into the mystery of mysticism and grandeur. For P4, the cross represents a silence that commands focus and invites an intimate vertical conversation with the Most Holy and the Great. P4 participated in the ritual of celebrating the Eucharist separately from the Carmelite sisters (OCD). The sisters gathered in a space called the choir room, where all

their prayers and Eucharistic celebrations were held. P4 felt calm and peaceful while listening to the prayers, praises, and songs of the sisters from within the chapel.



Fig. 8 Visualisasi Transformasi unit makna pengalaman partisipan 4

The sensation of silence radiates when the door to the choir room opens (Figure 8(c)), allowing P4 to perceive a deeper connection with the sisters. The aura of silence from the choir room flows gently with the breeze into the chapel space. The sight of the sisters in their brown habits, silently praying, conveys the sanctifying power of silence. This experience helps draw P4 into a vertical conversation.

From all the core meanings transformed through the power of imagination and profound intentionality, a specific structural formulation of the meaning units for each participant's experience can be derived. These specific structural formulations are then used to generate a general structure of the essential meaning of the sound experience within the architecture of the Chapel of Santa Maria of Bethlehem. This general structure, formed from the intertwined core meanings of the architectural experience, is themed around silence. This silence offers dialectics and movement toward sacredness, serving as the foundational theme for existential meaning.

Table 5. Specific structure formulation of the auditory experience

Participant	Specific structural formulation of the auditory experience in the architecture of the chapel
P1	<ul style="list-style-type: none"> <li>- The meaning of silence offers a dialogical and empathetic relationship, inviting interrelation in togetherness and communion both among people and between people and the environment.</li> <li>- During the moment of silence before the Eucharistic celebration, a stirring directs attention toward the mystical cross engraved on the chapel's sanctuary. The silence, supported by the cross, draws the self into a sacred atmosphere. The presence of God is more profoundly felt through the cross, which serves as the centre and focus of the soul.</li> <li>- Interconnectivity is perceived during the procession toward the sanctuary in the opening ritual. The priest's procession to the sanctuary serves to unite and prepare the congregation in fellowship, gathering them to worthily enter the Eucharistic celebration. The silence creates an empathetic atmosphere, nurturing a shared sense of collectively presenting worthiness before God.</li> <li>- The movement, accompanied by silence, is perceived during the procession, leading to a more central and sacred point. Upon reaching the sanctuary, the priest bows and kneels, creating a pause drawn toward the glowing tabernacle beneath the cross. The silence, supported by the tabernacle, draws the self into memory and awareness of the centre of the Eucharistic celebration. This silence also gathers the congregation to collectively honor the tabernacle.</li> </ul>

	<ul style="list-style-type: none"> <li>- Distinct transparency is felt as the “kooor” room door opens, revealing the meaning of interconnectivity. This interconnection forms a movement, unified by the same fundamental tone, through the contribution and spiritual wholeness of the sisters toward the majesty of the Sanctuary. The silence offers a dialogical dimension, embodying a complete interaction connected and inseparable from the sacred whole before God.</li> </ul>
P2	<ul style="list-style-type: none"> <li>- Interconnectivity is perceived in encounters with various elements during the journey to the chapel. Silence connects individuals moving toward the chapel, offering moments of encounter—encounters with nature and culture that shape the atmosphere.</li> <li>- There is a sense of movement that directs focus and soul toward the cross atop the chapel building. The silence, supported by the cross, invites entry into a vertical conversation.</li> <li>- Each pause along the journey to the chapel reveals an interrelation with stillness, evoking a sacred vibration. A connection is felt with the arrangement of plants, hardscape elements, and iconic features, stirring the soul and drawing it toward silence and closer to God. The silence offers both interrelation and interconnection.</li> <li>- The silence navigates the journey to the chapel, supported by the configuration of the garden stairs, drawing the self into the majesty within the chapel. This silence moves and resonates.</li> <li>- The movement toward the chapel sanctuary is captured in the focused gaze. An upward progression in both the height of the floor and the ceiling elevates the vibrations of the mind and soul toward something greater. Furthermore, the presence of the cross and tabernacle, enthroned in the sanctuary space, draws attention, awareness, and remembrance of God. Silence, supported by the elongated and elevated dimensions of the space, draws the self into a solemn and majestic atmosphere of prayer.</li> <li>- The partition door separating the chapel from the choir room, where the sisters engage in prayer and celebrate the Eucharist, does not divide the congregation from the sisters. This connection is experienced through the movement of sound offered by the sisters. Silence expands the possibilities for interaction between subjects through the flow of sound.</li> </ul>
P3	<ul style="list-style-type: none"> <li>- Interconnectivity is experienced in the togetherness and communion with fellow community members within the warmth of the home. Silence is not solitary; it connects with the other sisters praying, singing hymns, and praising God together. They move collectively toward a majestic, holy, and sacred silence. The silence in the “kooor” room is both dialogical and empathetic.</li> <li>- The silence supported by the cross and the tabernacle draws the self into majesty, sanctity, and holiness. It offers communal navigation to orient oneself toward the cross and the tabernacle as the centre of God's presence.</li> <li>- The folding door serves as a boundary between the choir room and the chapel space. A sense of intimate connection with the congregation is felt when the door opens. The silence emerging from the monastic life of the sisters meets the life of the church (the congregation) on their pilgrimage. This encounter moves like incense rising high, following the ascending sanctuary space that points toward the transcendent and immanent.</li> <li>- The folding door that separates the chapel and the choir room does not create division but facilitates connection through sound. This dynamic reflects the relationship formed by the movement of sound sung by the sisters. The silence invites interaction among the sisters, the congregation, and the priest.</li> </ul>
P4	<ul style="list-style-type: none"> <li>- The silence in the chapel offers a dimension of sacredness that draws the self into a peaceful atmosphere and creates a focal point leading to the presence of God.</li> <li>- The silence supported by the chapel's elevated dimensions guides the self into a mystical sacredness, evoking a memory of the divine.</li> <li>- The silence of the cross in the chapel's sanctuary space allows one to be aware and focused, inviting an intimate encounter with majesty.</li> <li>- The silence supported by the choir room door, the space where the sisters pray, opens up to guide the self into a vertical conversation and channels sacred energy. Additionally, it fosters a relationship with the presence of the sisters.</li> </ul>

Based on the specific structure derived from exploring the participants' experiences in the Chapel of Santa Maria of Bethlehem, the findings revealed the general structure of the essential meaning of sound experiences in the chapel's architecture as follows: First, silence drives the search for relationships. Second, relationships within silence bind

multiple dimensions, with silence serving as a boundary opener that facilitates both vertical and horizontal conversations. Third, the silence that invites vertical and horizontal conversations navigates empathetic and dialogical dimensions, evoking profound memories.

## 4. Conclusion

This research comprehensively describes the auditory experiences at the Chapel of Santa Maria of Bethlehem in Lembang, West Java, revealing the profound meaning of sound in this setting. Findings indicate that silence transcends mere quietness, serving as a pause that opens gateways to deeper spiritual (vertical) and communal (horizontal) connections. These moments enhance both auditory and visual perceptions, intensifying the human experience and memory. From an architectural standpoint, the study

underscores the importance of integrating the auditory dimension in design to enrich human interactions. By exploring how silence and sound shape spatial experiences, architects can craft environments that promote contemplation and emotional engagement. This research not only advances the discourse on phenomenology in architecture but also suggests interdisciplinary approaches that combine architectural design with cognitive psychology, acoustics, and sensory studies to optimize the experience in sacred spaces.

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