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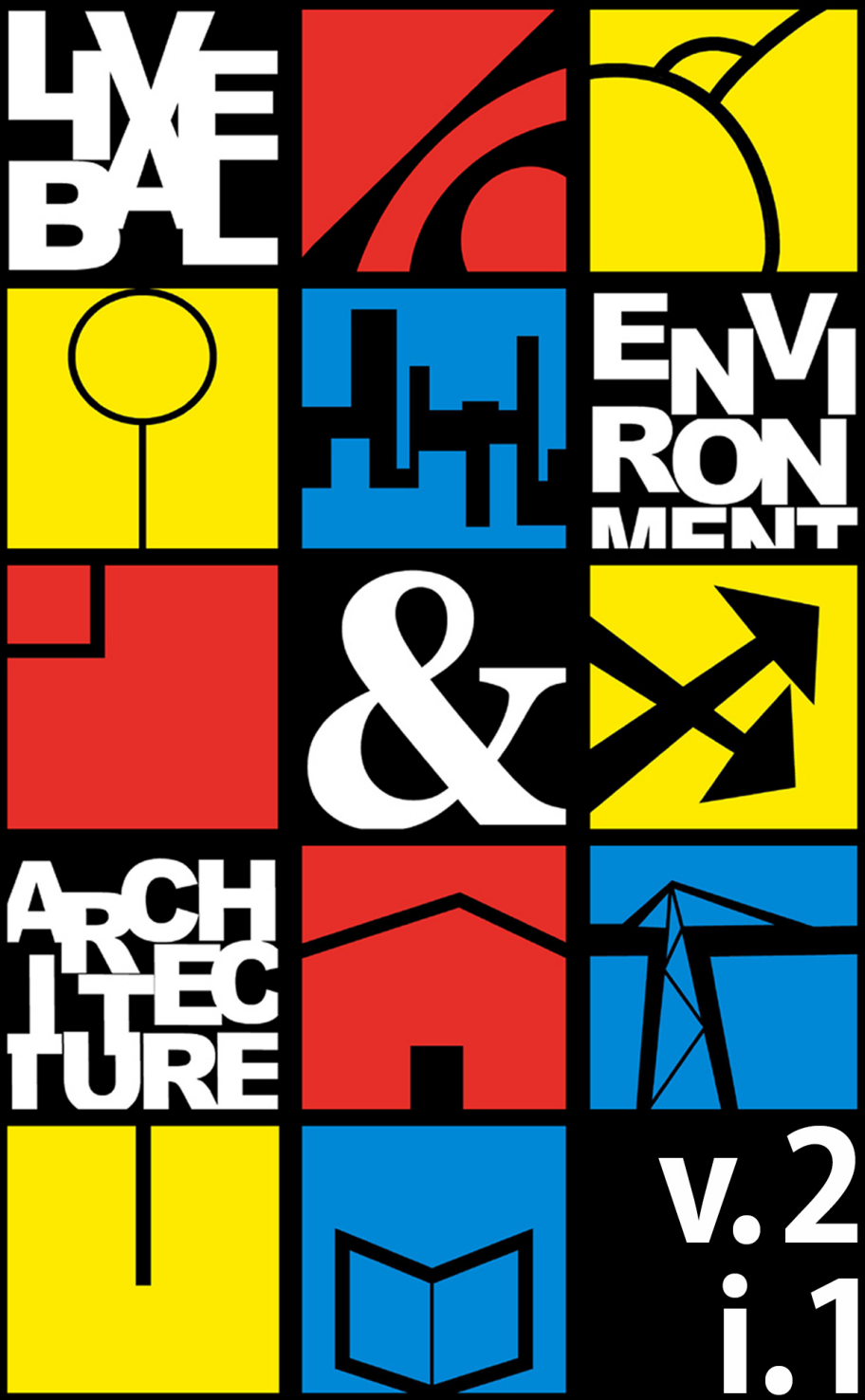

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Research Article

Abstraction and Empathy (Einfühlung) in Architecture: Rethinking Mosque Design in Sancaklar Mosque

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Art and Architecture, Abstraction and Empathy (Einfühlung), Style Psychology, Sancaklar Mosque, Architectural Style.

Abstract This paper aims to explore the aesthetic theories of empathy (Einfühlung) and abstraction, focusing on their application to architectural works. Wilhelm Worringer's psychological aesthetic theories serve as the framework for this study, particularly in analyzing how artistic styles reflect the internal world of the artist. The research examines how these theories have historically explained various art styles and their relevance to different cultures and epochs. The central focus is Sancaklar Mosque, which serves as a case study to investigate how abstraction and empathy manifest in contemporary architecture. Through content analysis, the study identifies key concepts from Worringer's *Abstraction and Empathy (Einfühlung)* and evaluates them from the perspective of the physical and qualitative architectural elements of the mosque. The findings aim to provide deeper insights into architectural style, particularly through the lens of psychological aesthetics. This study proposes a fresh and adaptable method for analyzing architectural works by integrating these two significant theories, illustrating their role in interpreting architectural style across different historical and cultural contexts.

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1. Introduction

In the study of aesthetic science, three fundamental elements become apparent: the subject (the artist), the object (the artwork), and the relationship between them. Before the 19th century, aesthetics was interpreted from an objectivist perspective, but later, under the influence of psychology, there evolved a subjectivist or psychological approach to aesthetics. One of the leading figures of this subjectivist approach is Theodor Lipps, who is regarded as the founder of modern psychological aesthetics. According to Lipps, beauty is a spiritual reality grasped by the faculties of thought and imagination (Montag, Gallinat & Heinz, 2008, pp. 1261). Lipps also explains the special feeling that the object evokes in the subject through a theory he calls "empathy" (***einfühlung***).

In German, ***einfühlung*** means "to feel something from within" and in the literature of art, it is defined as a feeling of pleasure. Although feelings are generally associated with the subject, the existence of the object is essential for empathy. According to Lipps, aesthetic pleasure arises when the subject lives out an experience in an object external to themselves. Lipps views this inner activity as the fundamental condition of the aesthetic process; each object takes shape as much as the subject perceives it. When this perception process is uninterrupted, the subject experiences a sense of freedom, and this freedom stems from the spiritual activity the subject experiences in the object (Jadoha, 2005, pp 151-152).

On the other hand, Wilhelm Worringer argues that Lipps' theory of empathy may be correct for certain art forms, but it falls short in explaining all forms of art. Worringer, considering the diversity of artistic styles across different cultures and historical periods, suggests that this variety cannot be explained by a single aesthetic theory (Worringer, 2017). Worringer counters Lipps' theory by pointing to abstract art forms, which he believes cannot be explained through empathy alone, and thus he develops the concept of abstraction. According to Worringer, abstraction stems from a negative relationship with the external world and inner unrest. While abstraction finds satisfaction in inorganic forms, empathy finds fulfillment in the vitality of nature and spiritual unity.

In the context of artistic traditions associated with Islamic societies, the concept of abstraction holds significant importance. These societies have developed diverse approaches to abstract art through geometry and mathematics, often striving to transcend external unrest and reflect metaphysical principles through abstract forms (Koç, 2008). However, the term “Islamic civilizations” should be used cautiously, avoiding homogenization and recognizing the multiplicity of cultural, historical, and individual factors shaping artistic production. Worringer’s concept of “Islamic architecture” includes not only the earliest religious structures of Islamic history, such as the Prophet Muhammad’s first mosque and the Kaaba, but also the formal religious buildings later developed by Arab societies. According to Worringer, the Kaaba, with its cubic form and clear shape, represents the ultimate form of abstraction (Worringer, 2017). Islamic architecture, deeply rooted in spiritual and cultural paradigms, manifests abstraction through intricate geometric designs, repetitive patterns, and an avoidance of representational forms. These elements are not merely aesthetic choices but represent a metaphysical dialogue, reflecting the transcendental unity of Islamic thought. For example, the design

principles of the Alhambra in Spain or the Great Mosque of Cordoba provide compelling historical contexts for understanding this tradition within the broader scope of abstraction.

Wilhelm Worringer analyzed these structures within the framework of his “abstraction and empathy” theory, emphasizing that abstraction was particularly prevalent in Islamic societies. According to Worringer, abstraction in art is an effort to transcend internal unrest by establishing a negative relationship with the external world. In Islamic architecture, this tendency is manifested through geometry and mathematical order.

Worringer described Islamic architecture as “a tangible reflection of the metaphysical understanding of Islamic societies” and analyzed these structures within the dialectic of abstraction and empathy in art history. According to him, art history is a dialectical process between abstraction and empathy, where the two tendencies complement each other. The abstraction tendency evident in Islamic art serves as a significant application of Worringer’s theory and is examined within this study. However, instead of limiting these works to the generalized term “Islamic architecture,” it is emphasized that they should be approached as a dynamic tradition reflecting the diversity of historical, cultural, and aesthetic contexts.

In this study, mosques referred to as “Islamic architecture” are discussed in a broader context, later encompassing Ottoman religious structures. Worringer explains art history as a dialectical process between abstraction and empathy. According to him, the history of art is almost equivalent to the history of the universe and religion. Empathy and abstraction are not opposites but complementary creative processes. These processes are shaped by the psychological state of the artist, playing a crucial role in determining artistic styles. Figure 1 outlines the formation of these two tendencies and their interrelationship, offering a framework to evaluate the nuanced and context-specific characteristics of architectural and artistic works.

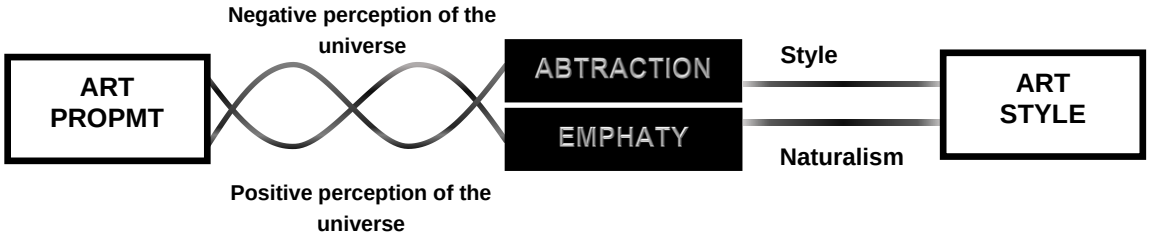

Figure 1. Abstraction and empathy process (Duman, 2021).

In this study, Worringer's theory of Abstraction and Empathy (Einfühlung) is discussed in the context of Islamic architecture and evaluated through the example of Sancaklar Mosque. The aim of the study is to examine how these two basic concepts in art and aesthetic theories are applied in the context of architecture and to contribute to architectural style studies.

The research will discuss the adequacy of the theory in explaining artistic tendencies across different cultural contexts, in contrast to the naturalistic style in Western art. In this regard, Sancaklar Mosque has been selected as a case study due to its unique architectural approach, which diverges from traditional mosque designs. The mosque is renowned for its minimalist aesthetic and integration with the natural landscape, reflecting a deliberate departure from ornamental and iconic elements. This makes it an ideal subject for examining how the theory

can be applied to architectural style. Furthermore, the mosque's emphasis on spirituality through simplicity aligns with the core principles of abstraction, offering a compelling contrast to more empathetic or emotionally immersive architectural styles. The choice of Sancaklar Mosque as a case study stems from its unique architectural approach, which blends modernist abstraction with Islamic principles, making it a rich example for evaluating Worringer's theory. Its minimalist aesthetic, integration with the landscape, and rejection of traditional ornamental elements offer a distinctive perspective on mosque design, reflecting a deliberate shift towards abstraction while maintaining spiritual resonance.

The theory discussed within the scope of this study is reinterpreted in the context of Islamic architecture and analyzed through the example of Sancaklar Mosque. The aim of the study is to reconsider this theory, which has made significant contributions to art history, and to create a new and developable research area regarding style studies in architecture. The method of the study was carried out by content analysis. The basic concepts in Worringer's work, *Abstraction and Empathy (Einfühlung)*, were examined through the physical and qualitative architectural elements of Sancaklar Mosque. In this context, the stylistic features of the architectural works were evaluated in terms of the theory, and how these features could be interpreted from different perspectives in the architectural sense was opened to discussion.

1.1. The Relationship between Abstraction, Einfühlung and Architecture

Architecture has become a discipline defined within the framework of formality and is recognized as an art form that represents the highest level of the relationship between humans and the world. Architecture serves as a means of expressing and interpreting humanity's aesthetic inclinations. In his work, *Esthetics in Architecture*, Masiero explains this by stating, "Architecture is a psychological necessity of form, positioned against nature's complex and unsettling perceptual world" (Masiero, 1999). This emphasizes architecture's role as a medium that structures the relationship between humans and their environment.

Art philosopher and theologian, Vischer posited that the element creating form on the aesthetic plane is the process of empathy or *Einfühlung*. According to Vischer, objectified images "come alive" and gain meaning through empathy (Tchikine, 2019). This perspective has laid the foundation for empirical-psychological interpretations of both art and architecture.

Fred Fiedler, reconsidering Kant's ideas, acknowledged that it is consciousness that gives shape to sensory experiences. Fiedler emphasized that the history of visual art and architecture represents the expression of styles and symbols (Fiedler, 2011). One of the most prominent figures in this field, Riegel, argued that art and architectural history are shaped through "visions" built upon the influences of various eras and styles (Riegel, 2000). Thus, the formal grammar of artistic works can be constructed in response to the cultural and historical contexts they emerge from.

Building upon these ideas, Wilhelm Worringer developed his theory by examining architectural history and seeking answers to the underlying reasons behind architectural styles and forms (Feist, 2007). Worringer's theory of abstraction and empathy not only had a profound impact on aesthetics but also significantly influenced architectural criticism and theory. His theory has

become an essential method for scientifically and critically analyzing artistic works and styles (Maskarinec, 2017).

Worringer strengthened his theory with examples from art history. First, by looking at the arts of primitive societies, he stated that these arts stemmed from a “fear of the spiritual universe” and that abstract art was born here (Worringer, 2017). Later, turning to Greek art, he suggested that structures that were distant from nature in the early periods evolved into styles that got closer to humans and nature over time. This process symbolizes a transition from abstraction to empathy. According to Worringer, geographical, intellectual, and religious conditions have deeply affected art. Periods that philosophically represented transcendence, and harsh geographical conditions paved the way for the emergence of works of art that tended to abstraction (Duman, 2021). In contrast, art periods based on empathy established a more positive relationship with nature, humans, and the environment, producing works that were close to these elements (Öhlschläger, 2020). Architecture also contributed to these artistic tendencies and produced structures that supported the theories of abstraction and empathy. Architectural structures based on abstraction theory generally stand out with minimalist and geometric forms that are far from nature, whereas structures based on empathy offer designs that emphasize the organic and intimate relationship that humans establish with their surroundings. These two opposing trends have directly influenced the shaping of architectural styles in different periods and geographies.

While structures influenced by abstraction offer a search for meaning through regular and abstract forms that question the place of humans in the world, structures on the axis of empathy aim to establish a human-centered and emotional bond in harmony with nature. The architectural traditions often associated with Islamic societies draw attention with their tendency towards abstraction; elements such as geometric ornaments, repetitive motifs, and avoidance of figurative elements highlight how abstraction has been employed in architectural practices. For instance, the Kaaba’s simple, cubic form symbolizes unity, stability, and the centrality of faith, aligning with Worringer’s idea of abstraction as a quest for transcendence and stability. However, rather than framing this abstraction solely as a metaphysical or religious phenomenon, it is essential to recognize the diverse sociocultural, historical, and material conditions that shaped these forms over time.

In this context, architectural works should not merely be seen as reflections of static cultural identities but as products of complex and dynamic historical processes. While Worringer’s theories of abstraction and empathy provide valuable tools for exploring these dynamics, the categorization into “Islamic,” “Western,” or “Modern” architecture risks oversimplifying the intricate interplay of ideas, practices, and material realities. Instead, these categories must be critically examined to avoid reinforcing binary oppositions such as East versus West or metaphysical versus rational. By engaging with the broader sociopolitical and economic conditions that shaped architectural forms, we can better understand how abstraction and empathy manifest across time and space as active, generative processes rather than as static, predetermined outcomes.

2. Method

2.1. Abstraction and Empathy: Conceptual Framework and Evaluation Criteria

The study aims to reinterpret a space within the framework of abstraction and empathy theory. In this context, the concepts to be used for analyzing the space are categorized based on the two main concepts found in Worringer's work, *Abstraction and Empathy (Einfühlung)*. In line with the scope and objectives of the study, the distinction between the key concepts of abstraction and empathy theories is clearly and explicitly analyzed in Table 1. These two concepts, which form the core methodology of the research, have been explained alongside related pairs of sub-concepts derived from relevant sources. Moreover, these concepts have been further expanded throughout the study, in accordance with the significance and depth of the topic.

Table 1. Basic distinctions of abstraction and empathy (Duman, 2021).

ABSTRACTION	**EMPHATY**
Pleasure in separating objects from subjectivity	Pleasure of experiencing subjectivity in the object
Unlimited, independent, complex universe	Positive, happy, aesthetic universe perception
Awareness that the world of appearances is not real	Consciousness of objects in the visible world
The need to step outside of oneself	The need for self-activation
Abstraction from the world of objects	Living our inner world in objects
A superhuman attitude, an emphasis on	An attitude that leads people to their existence and
Emphasis on timelessness and eternity	Dependence on place and time
Human-distance structures	Human-friendly structures
The material reflects its "own" property	The material is affected by form and function

In the following section of the study, content analysis was conducted to analyze the artworks in the book, and pairs of concepts were formed based on the analyses and relevant references. These pairs are listed under the headings of abstraction and empathy in Table 2. These concepts were used in the findings section of the study to evaluate the identified spatial elements. In the findings section, the researcher has indicated which of these concept pairs is more appropriate for each spatial element.

Table 2. Sub-concepts reached by the analysis of the concepts of abstraction and empathy (*Einfühlung)* (Duman, 2021).

Concepts and Sub-Concepts in Worringer	**Abstraction**	**Empathy**
Inferences	**Sub-Concepts**	
Concept Pairs Inferred Based on Worringer Reading	Compulsorily	Order
	Stability	Flow
	Superconscious	Conscious
	Absence	Existence
	Eternity	Liberty
	Timelessness	The Moment
	Persuasion	Consensus
	Monumentality	Humility

In this study, architectural spatial elements identified through content analysis are listed in Table 4. These spatial elements were evaluated using references taken from the book, and directly quoted concepts were identified from the relevant sources. The sections that the spatial elements refer to were analyzed through the example of Sancaklar Mosque. Architectural elements were adapted to different sections of Sancaklar Mosque and evaluated in relation to the selected pairs of concepts.

The dual concepts encountered in the theories of abstraction and empathy can be regarded as elements that contribute to the dynamic relationships shaping Islamic art. Rather than interpreting these dualities (such as unity in multiplicity) through a purely philosophical lens, it is essential to consider the historical and social contexts that shaped the production of these artistic and architectural works. For instance, the interplay between the architectural practices of 13th-century Anatolia and the philosophical thought of the same period offers a productive framework for examining similarities and differences. Such an approach avoids a simplistic "reflection" model and instead highlights the generative or transformative relationships between artistic production and intellectual traditions.

In this study, the dualities identified within the framework of abstraction and empathy theories were determined through Worringer's references and content analysis methodology. The sources from which these concepts were derived, and the researcher's interpretations are detailed in Table 3 of the study. This approach allows for a nuanced understanding of how abstraction and empathy operate as active forces within the socio-cultural conditions of their production, rather than as static representations of metaphysical ideas.

Table 3. Determination of the elements used in architectural space analysis (Duman, 2021).

Excerpt	Space Element/ Concept
In terms of atmosphere, the Roman style also emerges as a Northern form if its ancient essential element, to which something external is added, is not to be seen. (Worringer, 2017: 105) The unity of the work of art is here again refined in its crystalline geometrical laws, according to which the atmosphere of the work of art is again an abstract structure. (Worringer, 2017: 92)	ATMOSPHERE
Undoubtedly, individualistic northerners who have a long way to walk to reach the understanding of form… (Worringer, 2017: 39) … that is why it is beyond the absolute will of art, which can only express itself formally. (Worringer, 2017: 110)	FORM
The alternation between light and shadow is used in later stages of art development as a means of composition in an organic sense. (Worringer, 2017: 93) True, the surface undoubtedly gains vitality (with the effect of light and shadow), but this liveliness happens according to abstract rules… This kind of colorism does not appeal to our identification seventies. (Worringer, 2017: 93)	LIGHT / SHADE
More claims must be discovered here; For this will, we have no other handle other than a mute and inanimate material. (ibid: 116) We have to deduce the will underlying it from the ability to be expressed in this material. (ibid: 116)	MATERIAL

What is decisive in architecture is the dimensions, height, and width… Therefore, it is very important to determine the expressive value of the proportions. (Wölfflin, 2016: 53) The bulkiness and rigidity of the Doric temple were broken; proportions have approached human or general organic proportions… (Worringer, 2017: 81)	**PROPORTIONS**
The shade serves as the compositional factor and thus this crystal completes the laws. (Worringer, 2017: 92) The change between light and shadow is used as composition in the organic sense, but in the later stages of art development. (Worringer, 2017: 93)	**COMPOSITION**
In the era of Theodosius, abstract tendencies are expressed by the geometricalization of ornamentation, especially ancient plant motifs, and the weakening of the sense of form. (Worringer, 2017: 94) This style consists of the decorative schematization of the form, the approximation of the human shape to the surface ornamental character and to the architectonic commitment with it. (Worringer, 2017: 96)	**ORNAMENT**
In Greek building art, too, we are confronted with a structuralist form. (Worringer, 2017: 107) In the Ionian temple and the structural development that followed, the pure skeleton, based only on the laws of matter, is brought into the friendly and joyful life of the organic. (Worringer, 2017: 107)	**STRUCTURE**
…color, associations from a building's history and purpose, the oil offered by that building's substance, etc. Undoubtedly, there are many other factors. (Wölfflin, 2015: 25) The warm lines of wood engraving, or the cold lines of metal engraving, etc., are mentioned; this contrast also coincides with the "hard-soft" opposition of the sense of touch. (Wölfflin, 2015: 26)	**COLOR / TEXTURE**

After this brief explanation and Table 1, the concept pairs defined below were reviewed and edited by the researchers.

Compulsorily and Order:

While order represents the active involvement of the subject, laws signify the participation of the external world and natural forces in the process. In this context, laws point towards abstraction. Orderly forms can manifest in architectural structures through the arrangement of columns or decorative patterns. However, this order can sometimes become more flexible, acquiring a freer character (Figure 2). As an example, Wölfflin compares the absolute and serious posture of a monumental building to the orderly but cheerful atmosphere of a country house (Wölfflin, 2015: 42, 67).

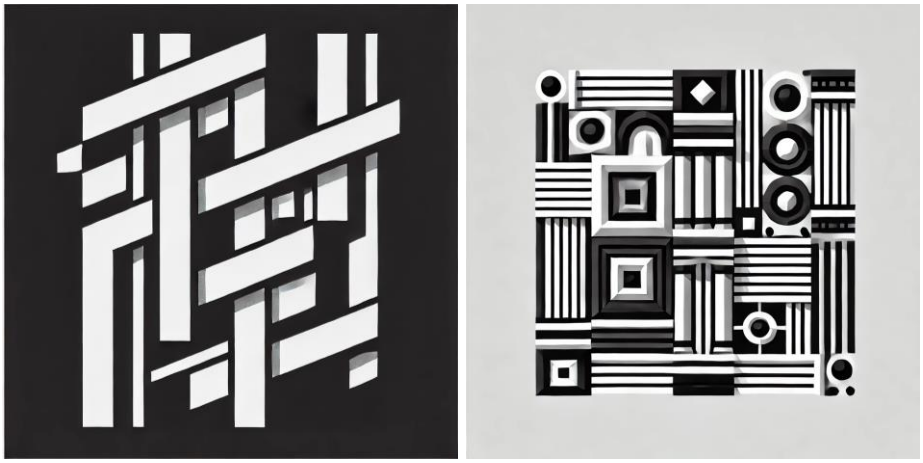

Figure 2. Abstract representations of compulsorily and order. (OpenAI, 2024)

Stability (Stasis) and Flow:

Broad, powerful, and imposing structures reject the instinct of empathy and stand firm with their internal order. These types of structures lack elements of movement, thus creating an independent space for movement within them. In contrast, artworks that are constantly in motion and aim to actively assert their existence appeal to the satisfaction of empathy. This design approach, directed towards the instinct of empathy, influences and guides the subject, shaping the individual's relationship with the space (Figure 3).

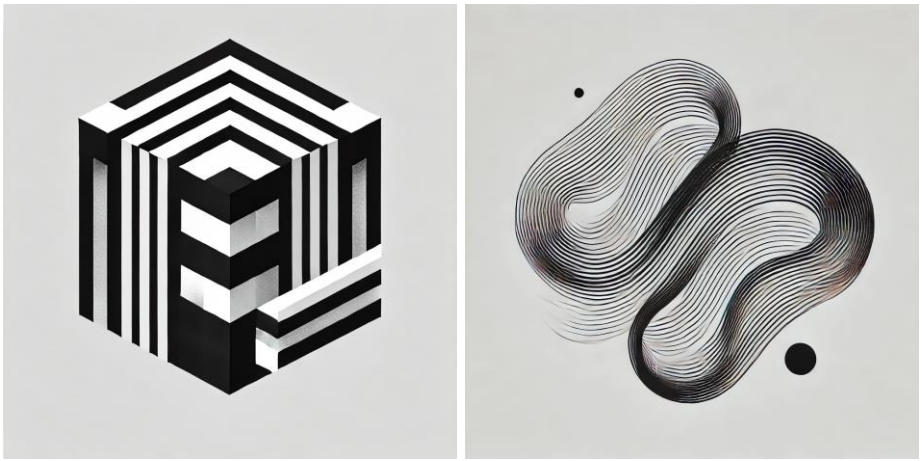

Figure 3. Abstract representations of stability (stasis) and flow. (OpenAI, 2024)

Subconscious and Conscious:

A subconscious approach leads to the creation of spaces in architecture without guiding elements. In such structures, the right to make conscious movements and decisions is not restricted, and thus the process of abstraction can be read more clearly. When a sense of closeness between humans and the world emerges, consciousness begins to develop. This consciousness represents a state free from insecurities in the world. The need for empathy is reflected in art as a desire for self-fulfillment, shaping human creative expression consciously (Figure 4).

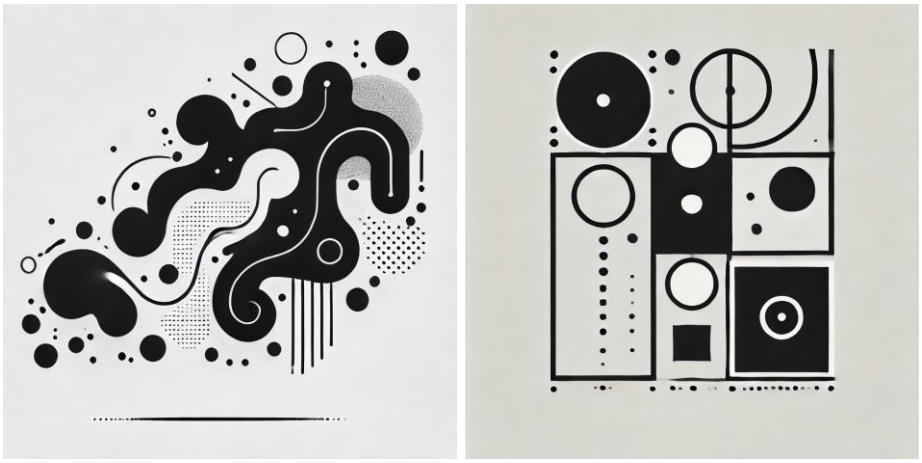

Figure 4. Abstract representations of subconscious and conscious. (OpenAI, 2024)

Nothingness and Existence:

It can be said that products satisfying the instinct of abstraction exhibit an attitude that nullifies human existence. The feeling of existence in a space and the perception of space through an inner emotion demonstrate how this concept manifests through empathy in design. For a person who finds the opportunity to experience their own existence in a space, this structure becomes a place of being. If the atmosphere of a space allows us to transcend our individual existence and establish a meaningful relationship with the structure, enabling us to feel and experience ourselves within it, then we can speak of a product of empathy (Figure 5).

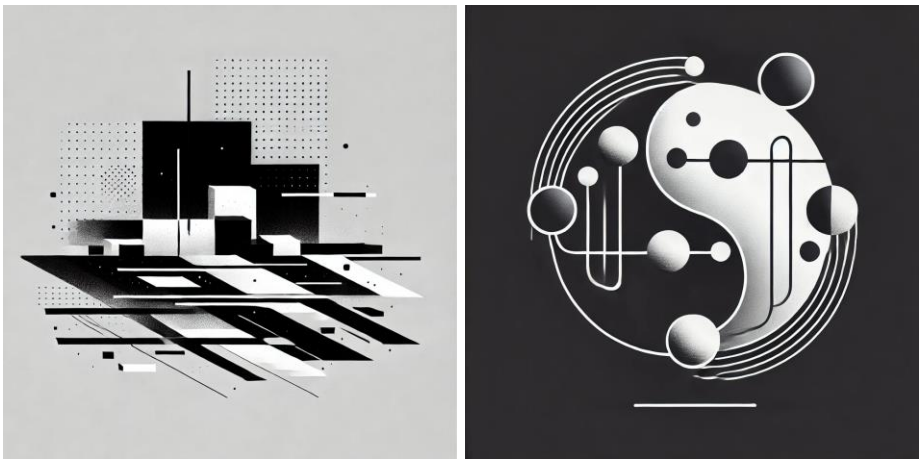

Figure 5. Abstract representations of nothingness and existence. (OpenAI, 2024)

Infinity and Freedom:

Human limitation, the structured nature of the universe, and the boundlessness of nature stimulate the instinct of abstraction in the artist. The creative spirit, forming its own universe within necessary boundaries, begins to desire infinity within those limits. The concept of "infinity within limitation" can be associated with the abstract stylistic choices of human-made works. This harmonious relationship between the universe and humanity liberates art; in this sense, art is subject to no constraints. In structures designed without necessity and restrictive boundaries, forms evolve freely, and plans can easily take the desired shape. Thus, freedom

in art and architecture is evident both in the design and in the experience of the space (Figure 6).

Figure 6. Abstract representations of infinity and freedom. (OpenAI, 2024)

Timelessness and the Moment:

Abstract style is created independently of temporal constraints and aims to offer a creation that transcends time. This style distances itself from being tied to a specific moment and place, extending time and space into infinity. Masters of abstract art focus beyond the world, creating timeless works. In contrast, the need for empathy derives pleasure from the relationship with nature, which is bound to time and place. In this context, the reflection of the moment in art can be expressed through the design of space with light in architecture. The materials and technology of the period in which the structure was built determine the era to which the building belongs (Figure 7). This interest becomes more apparent in artistic works shaped by the emotion of empathy.

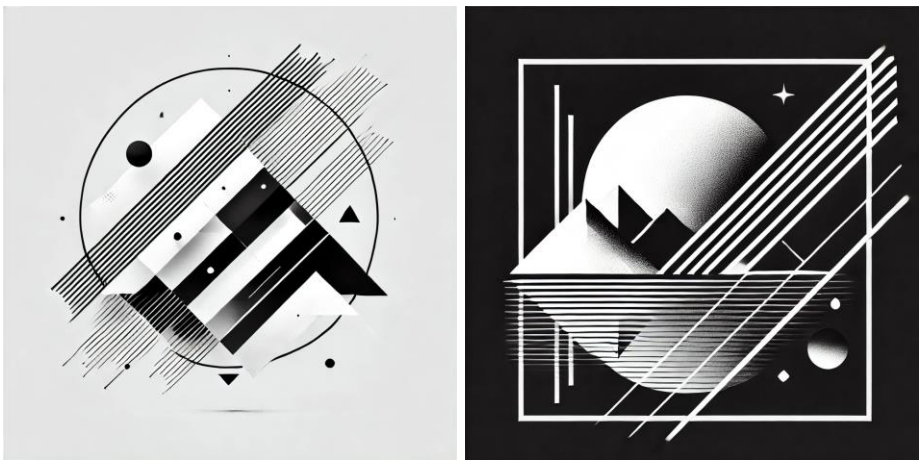

Figure 7. Abstract representations of infinity and freedom. (OpenAI, 2024)

Persuasion and Compromise:

Abstract art involves an effort to persuade, as it seeks to separate humanity from time and uncertainty. Abstract works of art, independent of time and place, must convince others of their existence and beauty. The instinct of empathy, on the other hand, establishes a seamless

compromise with the surroundings. Unlike abstraction, it does not engage in a struggle; rather, there is a sense of yielding and reconciliation in the achieved form (Figure 8). This establishes a direct and peaceful relationship, strengthening the bond between humans and their environment.

Figure 8. Abstract representations of infinity and freedom. (OpenAI, 2024)

Monumentality and Modesty:

The system based on the laws of abstraction reveals the grandeur and monumental nature of abstract style. Such structures represent a sense of sublimity with their height and law of inexpressive matter, standing independently with a distant stance and aiming for immortality. The grandeur of these structures' stems from the rule-bound nature of abstraction, intending to transcend time and achieve permanence.

Conversely, harmony established through empathy offers a naturalistic approach, bringing the structure closer to a more human dimension (Figure 9). The feelings of life that emerge without any obstacles cause the expression of the work to be modest. Works of art based on empathy offer a simpler and more natural beauty, providing a closer and more intimate experience for the viewer.

Figure 9. Abstract representations of monumentality and modesty. (OpenAI, 2024)

3. Findings

3.1. Analysis of Sancaklar Mosque within the Scope of the Theory

Sancaklar Mosque, which has garnered attention by winning numerous awards, is in the Büyükçekmece district of Istanbul. Designed by Emre Arolat, the mosque, of which construction began in 2013, is situated on a sloped terrain. Thanks to its design, which integrates with the topography, Sancaklar Mosque has a capacity of 650 people. In addition to the prayer area, the mosque also includes a library and a socializing space. Its striking minaret, location, and architecture are designed to harmonize with the surrounding environment (Figure 10). The mosque spans an area of 700 square meters and is built into the ground in a pentagonal-shaped terrain (Figure 11). It features two separate entrances: one leading to the general area and the other to the women's prayer section.

Figure 10. Sancaklar Mosque Stairs (Duman, 2021).

The design process of Sancaklar Mosque was undergoing with an understanding independent of traditional discussion grounds regarding the question of "How should a contemporary and modern mosque be?" (Aynalı, 2011). However, this independence does not mean being completely isolated from the surrounding context. By focusing on the essence of the place of worship, the architect not only distanced himself from form-based discussions, but also took a critical distance from conventional representations in modern mosque architecture. In this context, Sancaklar Mosque is an architectural production that questions the representations and meanings that mosque architectures produced not only in Türkiye but also abroad are based on. In this project, Arolat pointed out the meaninglessness of colonizing the time-space relationship and explored alternative ways of designing a place of worship today. With this approach, Sancaklar Mosque offers a critical perspective by establishing a dialogue with the surrounding social and cultural context.

The mosque's minimalist design, its harmony with the natural environment, and its aesthetics that distance themselves from traditional forms position it as a form of opposition to the surrounding context. In this respect, the building has become not only a functional place of worship, but also an object of discussion that brings a new interpretation to modern mosque architecture.

Designed by Arolat in line with the principle of "the essence of the place of worship", Sancaklar Mosque is clearly distinguished from other mosques in terms of both its interior and exterior structure. Located in a rural and peaceful environment, in an area where gated community-type residences are located, the mosque stands out with its remarkable architecture. This structure, which was awarded the world championship in the religious buildings category at the World Architecture Festival held in Singapore in 2013 (Source), was selected as a sample in the study. The mosque constitutes an ideal example for our research due to its unique understanding of space and atmosphere. The conformity of the structure to the theories of abstraction and empathy is also discussed, especially in the context of the psychology of religious structure and style.

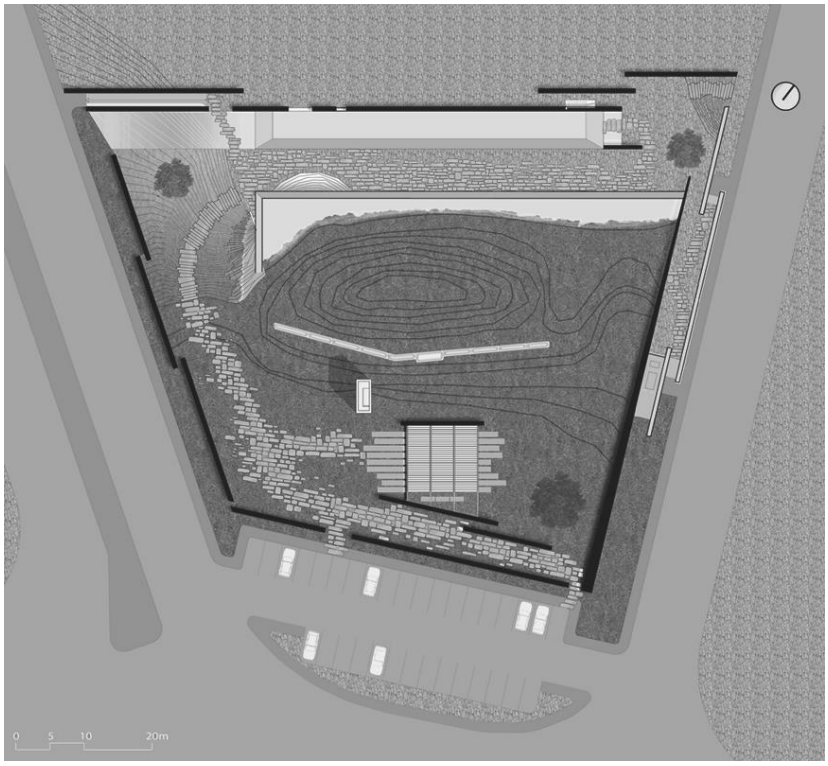

Figure 11. The site plan of Sancaklar Mosque (Duman, 2021).

Sancaklar Mosque, which is examined in the light of current discussions, ideological approaches, and critical perspectives, is addressed with its psychological aspects within the framework of Worringer's abstraction and empathy theories. In this article, the mosque is evaluated in terms of these two concepts and the results are summarized under the following headings. While preparing the tables, a method based on Worringer's methodology was used, and subjective and hypothetical evaluations of the theory were included.

3.2. Sancaklar Mosque through Worringer's Criteria

3.2.1. A Perspective on Compulsorily and Order

Compulsorily in design refers to the creation of necessary and absolute spaces, while in regular elements, these rules tend to be applied more flexibly. The atmosphere of Sancaklar Mosque evokes a sense of orderliness, as it is designed for worship, gathering, and sharing. This sense of order is reflected in the monochromatic effect created by the materials and the structured arrangement of light beams within the space. In this context, according to Worringer's theory, it is possible to argue that the mosque exhibits a tendency toward empathy (*Einfühlung*), as its design fosters a deeper connection with its users.

Sancaklar Mosque, in terms of its form, does not represent any strict necessity; rather than adhering to a rigid structure, it has been shaped by adapting to the topography it occupies. The form of the building is uniquely crafted to suit its specific location, blending harmoniously with its surroundings (Figure 12). The elements of the mosque are designed with organic, regular proportions, and the materials used were selected to align with the texture of the region. The stone utilized here does not dominate its environment, as seen in traditional mosque structures, but instead adapts to it. In this context, the form of Sancaklar Mosque can be understood as an expression of the principle of order.

Figure 12. Photos of Sancaklar Mosque representing compulsorily and order (Duman, 2021).

3.2.2. A Perspective on Stability and Flow

From the moment we enter the part of Sancaklar Mosque that separates it from the outside world with a low wall, we find ourselves immersed in a sense of flow. This feeling of flow continues seamlessly within the prayer space as well. The mosque almost seems to say, "Come and pray," and in this respect, it offers an experience of empathy (*Einfühlung*). Although there may be a sense of enclosure and inwardness when looking at the site plan, the overall integrity of the structure and its components exhibit a dynamic fluidity.

The changing effects of light and shadow throughout the day transform the building into a space where time flows, and these effects become key elements that contribute to the mosque's empathetic atmosphere. The use of color and texture in the structure achieves a harmonious flow with nature and within itself. The effects of color and texture, both inside and outside the building, are part of this flow. These elements do not contrast with their surroundings; instead, they move in harmony with them (Figure 13).

Figure 13. Photos of Sancaklar Mosque representing stability and flow (Duman, 2021).

In terms of stability and flow, the results of the empathy instinct in the structure are clearly visible. This building, which “lives” like a living organism, creates a sense of direction by extending beyond its boundaries, affirming how the concept of empathy is embodied in the structure. Continuity and fluidity can be observed in the elements of the building. Unlike a static, inexpressive structure, movement and dynamic energy prevail in all architectural elements.

3.2.3. A Perspective on Superconscious and Conscious

Sancaklar Mosque has been shaped by an interpretation of Islamic consciousness, which encompasses a perspective on the interconnectedness of the world, nature, and living beings. This consciousness is rooted in principles that emphasize harmony, balance, and a deep awareness of the divine presence in all aspects of existence. In this context, Islamic consciousness encourages a relationship with the universe that is both respectful and reflective, prioritizing unity and coexistence over domination. The building’s integration with the topography, its nuanced use of light and shadow, and the deliberate design of directional elements all reflect this holistic worldview. These design choices highlight the mosque’s empathetic connection with the natural environment, suggesting a tendency toward harmony with its surroundings. The carefully planned entrances, exits, and directional cues further emphasize this empathetic approach, aligning the architectural form with the principles of coexistence and balance central to the Islamic worldview (Figure 14).

Figure 14. Photos of Sancaklar Mosque representing superconscious and conscious (Duman, 2021).

On the other hand, considering its functional essence as an Islamic place of worship, the mosque does not restrict individuals' rights to act and make decisions consciously, providing a free environment in this regard. Therefore, Sancaklar Mosque can also be viewed as a product of the abstraction process when evaluated within the concepts of superconscious and conscious. A conscious design approach creates spaces in architecture that are shaped by guiding elements. This mosque, directed by the elements of light, shadow, and circulation, stands out as a product of empathy, but it also functions as a space for worship created through the process of abstraction. In conclusion, Sancaklar Mosque has adopted a distinct and unique design process.

3.2.4. A Perspective on Absence and Existence

When evaluated through the lenses of absence and existence, the design of Sancaklar Mosque appears to engage with both abstraction and empathy processes simultaneously. Rather than attributing this duality solely to a fixed structure of Islamic thought, it is more productive to approach these elements as dynamic and context-dependent relationships. The pairing of abstraction and empathy in the mosque's design reflects a nuanced interplay rather than a predefined synthesis. For instance, the sense of emptiness in the space evokes an abstract expression of "absence," allowing for a transcendental experience, while the mosque's originality and physical presence point towards "existence" as a lived, human-centered reality.

The duality described here -absence/existence, abstraction/empathy- should not be reduced to an essentialist interpretation of Islamic thought. Instead, these concepts can be understood as part of a broader theoretical framework that examines how architectural spaces negotiate opposing forces and meanings. By situating the mosque within this relational and context-specific framework, we can explore how its design navigates and redefines these tensions without assuming a singular or universal structure of thought. This perspective allows the mosque to be evaluated as a unique architectural response to both historical and contemporary conditions, enriching the theoretical discussion of abstraction and empathy (Figure 15).

Figure 15. Photos of Sancaklar Mosque representing absence and existence (Duman, 2021).

3.2.5. A Perspective on Infinity and Liberty

Despite being a design shaped by certain limitations and available resources, Sancaklar Mosque creates a sense of infinity within itself. This perception seeks an infinity hidden within its boundaries. Through a design approach that is not bound by rigid forms or obligations, the forms, atmosphere, and composition have been created with liberty. When evaluated through the lens of Islam's dual structure, the mosque's design does not conform to any predefined category, instead establishing its own unique space (Figure 16).

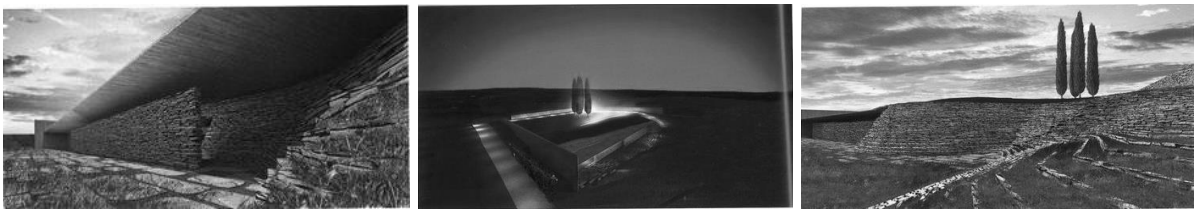

Figure 16. Photos of Sancaklar Mosque representing infinity and liberty (Duman,2021).

3.2.6. A Perspective on Timelessness and Moment

From the perspective of timelessness and the moment, Sancaklar Mosque can be understood as engaging with these concepts in a relational rather than absolute sense. While the abstract style of the structure evokes a sense of “essence” and offers a space that transcends specific historical moments, it remains inherently tied to the temporal and spatial realities of its creation. Every human-made structure is intrinsically connected to the time and place in which it is conceived, and the mosque is no exception. The duality of timelessness and the moment, therefore, does not imply an inherent contradiction but rather highlights how the building negotiates these two dimensions (Figure 17).

Figure 17. Photos of Sancaklar Mosque representing timelessness and moment (Duman, 2021).

Through its design, the mosque invites users to reflect on the universal and the immediate simultaneously. The abstract form suggests an enduring relevance across different times, while the experiential aspects, such as the play of light, shadow, and spatial orientation, ground the mosque firmly in the present. This synthesis does not negate the temporal and spatial realities of the mosque’s creation but rather emphasizes how abstraction and empathy can coexist as interdependent phenomena within the same architectural work.

3.2.7. A Perspective on Persuasion and Consensus

Sancaklar Mosque is designed as a space for rest and gathering, creating an atmosphere that goes beyond mere functionality. It is also perceived as a peaceful retreat, a hill to lean on for serenity, or a stop to gaze upon the surroundings. The persuasion the structure establishes with the topography gives the mosque a sense of being deeply rooted and permanent, as if it has always been there. The mosque achieves a seamless consensus with the earth, effortlessly integrating with nature. Within the structure, and through the materials used, a peaceful relationship with the natural world is established, creating an atmosphere that aligns with the Islamic values of peace and tranquility (Figure 18).

Figure 18. Photos of Sancaklar Mosque representing persuasion and consensus (Duman, 2021).

3.2.8. A Perspective on Monumentality and Humility

Sancaklar Mosque, among structures built with empathy, possesses a design that evokes a sense of closeness and humility. Free from exaggeration, not boastful, and presenting what exists as it is, the mosque offers a space that embodies the concept of empathy. This design approach provides a humble experience for the individual, representing a profound reflection of the empathy concept in architecture through its monumentality and simplicity (Figure 19).

Figure 19. Photos of the Sancaklar Mosque representing monumentality and humility (Duman, 2021).

4. Conclusion

Thoughts, ideologies, worldviews, and psychological conditions shaped by the passage of time undoubtedly influence architectural designs. However, framing this relationship as a rigidly deterministic causality—where architectural styles and forms are mere reflections of these elements—risks oversimplifying the complex interplay of factors involved in the creation of architectural objects. Worringer's assertion that "What forms an artistic style is closely related to the religious/worldview and psychology of the time" should be approached critically. While intellectual and psychological conditions contribute to shaping architectural forms, they do not act as sole determinants. The production of architecture involves a multifaceted process where material constraints, individual creativity, socio-political dynamics, and unintended outcomes play equally significant roles.

This approach also raises questions about the extent to which these so-called "worldviews" or "psychological conditions" truly encompass the thinking of individual architects or the cultural context of a specific project. For instance, can the design choices of Emre Arolat in Sancaklar Mosque be reduced to a single philosophical or ideological framework? As someone familiar with Arolat's work, it is unlikely that his design was entirely dictated by the overarching thought systems suggested here. Instead, Sancaklar Mosque exemplifies how contemporary architects negotiate between historical references, functional requirements, personal creative

vision, and the evolving discourse of modern architecture. By acknowledging the multiplicity of factors at play, we can move beyond deterministic explanations and toward a more nuanced understanding of architectural production.

Worringer's *Abstraction and Empathy (Einfühlung)* theory, based on his analysis of art history, has made significant contributions to the understanding of stylistic psychology. The fundamental reason this theory has gained prominence in art history is that it does not approach artistic creations from a one-dimensional perspective and incorporates the "other art impulse" (Giedion, 1941). The theory's objective is to examine the psychological underpinnings that influence the art of a nation or an era. Within the scope of this study, the results of this theory, as they are accepted in the field of art, have been criticized.

To investigate the rich and profound aspects of Islamic art, mosques, as prime examples of Islamic architecture, were chosen for this study. The theory posits that art, religion, and worldview are different expressions of the same psychological forces, suggesting two distinct inclinations (Duman, 2021). Burckhardt (1976) argues that societies with a transcendental worldview tend to produce abstract works of art. Islamic art can be seen as a complex interplay of abstraction and empathy, shaped by the diverse cultural, social, and psychological conditions of its time.

When it comes to mosque design, the traditional mosque typology in Türkiye, often perceived as a formal burden, frequently comes to mind. However, this perception stems from a tendency to view the past as a singular and unified whole, a perspective that has shaped modern thinking over the last two centuries. In reality, mosques do not have fixed and immutable forms. On the contrary, throughout history, mosques have diversified under the influence of different cultures and periods, adopting various approaches that reflect the unique conditions of their time (Necipoğlu, 1995).

Rather than seeing traditional molds as static and monolithic, it is essential to recognize them as dynamic responses to the psychology, worldview, materials, and technologies of their era. These elements reinforced their meaning through repetition, but they also evolved over time. With the advancement of knowledge and technology, architectural approaches have the potential to transcend mere imitation, though this is not always achieved. Thus, the idea that mosques should adhere to a single, unchanging style and form must be critically questioned (Khan, 1990).

The dynamics of Islam, which inherently embrace adaptability and reinterpretation, indicate that structures and designs should have freedom. At the same time, these structures should not be understood purely as products of abstraction. Like all works of art, mosques are shaped by the complex psychological, ideological, and cultural influences of their time. While this theory, which suggests that artistic styles emerge from perceptions of the world and the psychology of the era, offers valuable insights, it also underscores the importance of viewing Islamic art as a fluid and evolving tradition shaped by both historical continuity and innovative movements (Said, 1978).

Based on this analysis and the examples examined, it becomes evident that Sancaklar Mosque represents a unique reinterpretation of traditional mosque architecture, blending

minimalist abstraction with a sense of spiritual connection. The findings highlight how the mosque balances the principles of abstraction and empathy, creating a space that transcends conventional architectural expressions. The minimalist design, integration with the natural landscape, and deliberate use of light and materials contribute to its abstract qualities, while its human-centric spatial arrangement and emphasis on emotional experience reflect empathetic tendencies. This duality underscores the adaptability of Islamic architecture in addressing contemporary needs while staying rooted in spiritual and cultural traditions. Ultimately, the analysis reveals that Sancaklar Mosque is not only a work of architecture but also a meaningful dialogue between tradition and modernity, abstraction and empathy, offering a comprehensive framework for understanding evolving artistic impulses in Islamic architecture. This analysis highlights the mosque's dual role as both a spiritual sanctuary and a critical architectural statement, challenging conventional typologies. By bridging abstraction and empathy, Sancaklar Mosque exemplifies how Islamic architecture can evolve to address contemporary needs while remaining deeply connected to its historical and cultural roots. The study demonstrates that architecture, as a living tradition, continues to navigate the delicate balance between innovation and tradition.

The traditional mosque typology has been questioned and reinterpreted, resulting in a style that leans more toward empathy. However, the transcendental thought central to Islam has not disappeared, and in this sense, the artistic impulse created through abstraction is also present in the structure. The mosque has been analyzed as an abstract work within the article, with an emphasis on its evolutionary process and the clear selection of its form and essence. When considering the use of light, metaphors, materials, and the relationship with the topography, it can also be evaluated under the concept of empathy (Frampton, 2001). The presence of both concepts allows the conclusion that the structure forms its own artistic impulse as a reactive expression (Duman, 2021).

While the style of Sancaklar Mosque does not replace the traditional mosque typology in Türkiye, it introduces alternative ways of thinking and perceiving, challenging conventional understandings. In this context, the question of how the building aligns with the "spirit of the time" or the "psychology of the present" becomes critical. If the emphasis is on a broader conception of "time," encompassing cultural, social, and technological processes over a longer period, it is essential to explore how these dynamics have shaped the building. Architecture is not merely a product of a specific moment but a process that blends inherited traditions from the past with the needs of the present and aspirations for the future. From this perspective, the abstract and minimalist design of Sancaklar Mosque provides an experience that integrates the continuity of Islamic architectural traditions with the influences of modern technologies and aesthetic sensibilities.

However, if the focus is solely on the "present moment," critical and, at times, contentious relationship of the mosque with contemporary architectural expectations in Türkiye must also be addressed. The building deliberately distances itself from traditional forms, presenting not just an innovation but also engaging in a complex dialogue between past, present, and future. This dialogue positions the mosque both as part of historical continuity and as a critical response to current social dynamics. Thus, Sancaklar Mosque transcends the confines of a

single moment, embodying a broader temporal and cultural perspective that reflects the evolving nature of architectural and societal transformations.

Declaration of Ethical Standards

The article complies with national and international research and publication ethics.

Ethics Committee Approval was not required for the study.

Conflict of Interest

There was no conflict of interest between the authors during the research process.

Authors' Contributions

The author contributed alone to the article and takes full responsibility for the content and any modifications made during this process.

Declarations

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According to the originality report obtained from the Turnitin software, this article's similarity rate is 5%.

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Research Article

Walking as a Critical Spatial Practice: Mapping Perceptions of the "Other" in Urban Space

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Abstract

This article turns the lens to spatial practices that create environments for new relationships between the body and its surroundings and offer alternative ways of understanding and engaging with the city. It centers on the activity of walking as an everyday critical practice that is both performative and explorative. This approach differentiates itself from the existing literature by critically examining the walking act and exploring temporary, perceptual, and experiential potentials of understanding and narrating the city through the perspective of "the other". This article aims to investigate and discuss "other" spatial data about the city, its inhabitants, and their movements to enhance spatial awareness by employing critical spatial practice. This process enables the revelation of "other" languages, informed by the body's movements and interactions within the city.

The goal is achieved by presenting "the walking act" as a critical everyday activity, discussing it theoretically, examining various walking styles and walkers, and conducting a case study on the Marmaray line in Istanbul. Based on these discussions, the article develops "another" description of "critical walking". The case study involves walking and synchronously mapping elements related to "the other", aiming to uncover an alternative language to make sense of urban spaces. Unlike conventional architectural representations, this mapping is open-ended, without rigid boundaries. In doing so, while this inquiry does not intend to reach a conclusive interpretation, it is possible to conclude that the walking practice in question transforms the experience into a personal and unique knowledge of space by promoting spatial awareness through the "others" of the city.

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1. Introduction

Along with the epistemological paradigm shift that originated in the early twentieth century, the concept of space began to be understood concerning a body in motion. Phenomenological approaches, which emphasized perception as connected to the subject rather than the object, framed space as a domain of a dynamic, perceptive body in movement. This shift has gradually been challenged and moved away from human-centered, Cartesian, and rational understandings of space and body, which have previously reduced their interactions to measurable fragments and visual components. The orthographic projections and perspective views that inquire into the city from a top-down, human-centered vision - rooted in Renaissance models of vision and the observer - were insufficient for capturing the experiential dimension, as they omitted the observer as the subject and their lived experience (Altunok and Dursun Çebi, 2021).

At this point, it is important to highlight that the body is not a static entity when interacting with space. Rather, it is a dynamic concept that both transforms and is transformed by space. Merleau-Ponty articulated this dialectical relationship between body and space by suggesting that bodily experience of movement is not merely a perception of a particular object, but an instrument for engaging with the world and matter (Direk et al., 2017). Walking as a bodily movement involves both the physical activity and the mental impulse that enables the materialization of this movement in space. Therefore, while the walker perceives the urban environment, their body opens to the world and matter by encountering the same environment (Altunok, 2023). The epistemological shift has caused the concepts of body and space to evolve along uncertain trajectories, giving rise to more heuristic, empirical, critical, and ambiguous discourses. This article focuses on critical everyday practices that emerge from these empirical and ambiguous frameworks, with the central assumption that such practices have the potential to uncover “other” languages made visible through the body’s movements and actions within the city. The significance of this potential is based on the idea that attempts to understand and represent urban space largely through conventional methods and tools are often insufficient in unveiling and representing “other” forms of knowledge about urban space.

This article explores the everyday practice of “walking in the city” as a critical performance, drawing significantly on de Certeau’s discussion on this act. De Certeau (1988) conceptualizes “the act of walking” as both a spatializing and space-constituting practice, where each step leaves a persistent imprint on the urban surface, and the paths formed to reflect the geography of the city. His discourse challenges the conventional, top-down, human-centered perspective on the city, which aligns closely with this article’s investigative approach. De Certeau (1988, p. 92) rhetorically asks in *The Practice of Everyday Life*: “Must one finally fall back into the dark space where crowds move back and forth, crowds that, though visible from on high, are themselves unable to see down below? An Icarian fall”. Here, looking from the top of a skyscraper in New York City and perceiving the complexity of what is going on below and the movement of people are referred to as a bird’s eye view of the city, while experiencing the city from the ground level refers to the act of walking. The perception between the two must be completely different.

Building on this foundation, this article seeks to examine and discuss “other” spatial data related to the city, people, and movement, aiming to enhance urban spatial awareness through critical practices and to reveal “other” languages expressed through the body’s acts and movements in the city. Here, “other” languages serve as a semiotic metaphor. Yücel (2005) posits that language extends beyond speech and text, while communication is not confined to machinery; numerous activities can be interpreted as languages or forms of message transmission. Thus, it is limiting to claim a single mode of interpreting language and its connection to architecture. Instead, “other” languages should be explored to reveal transmitted messages within the urban environment and to address “other” spatial data concerning the city, its inhabitants, and their movements.

From this perspective, the article is structured around a central question: If bodily movement serves as a platform for disseminating oneself through the material world and simultaneously constitutes a dialectic between subject and space, how can the body create an alternative language through movement and the acts that it integrates into this process? This question will be addressed by presenting walking as a critical everyday practice, discussing it theoretically, analyzing various walking styles and walkers, and ultimately conducting a case study. This article distinguishes itself from existing literature by means of treating walking as a critical lens for viewing our surroundings and representing it through mapping, thereby exploring perceptual and experiential potentials in architectural representation to challenge the conventional, top-down approach to spatial observation.

1.1. Walking as Critical Engagement with Space

Jane Rendell’s concept of “critical spatial practice” addresses the nature of critical everyday activities, emphasizing both the “critical” and “spatial” elements by focusing on the unique spatial dimensions within interdisciplinary practices bridging art and architecture (Rendell, 2006, p. 20). She considers walking an everyday activity that qualifies as critical spatial practice because it fosters new types of relationships between subjects and objects in architectural design, particularly when exploring spaces in flux and social encounters (Rendell, 2006). Thus, criticality within spatial practices connects space with the understanding of space, facilitating environments for novel experiential, heuristic, and ambiguous relationships between subject and object within architectural contexts.

This article centers on two primary acts that embody criticality; “walking in the city” and the representation of the walk, specifically through mapping. Their connection draws on Judith Butler’s concept of performativity. Butler (1988) suggests that a body engaged in a public performative act is not simply shaped by cultural codes but also plays an active role, bringing interpretations to life within the boundaries of existing norms. Similarly, the practice of walking-based mapping performs place through interpretation, making the map more than a reduced representation. According to Rendell’s depiction of critical spatial practice, walking, which leads to comprehension of space through the flows within it, leads to a reciprocal relationship between the subject and the objects. Describing walking on another axis, namely mapping in this article, corresponds to the fact that the body shapes the concrete and abstract environment in which it moves with the inferences it makes, rather than being shaped by existing norms

based on Butler's thought, and this again demonstrates a kind of reciprocity. The critical potential of "walking in the city" emerges from its ability to transform space through subjective performance, as the specific location, duration, and speed influence the walker's perception, generating a unique, subjective experience.

In developing his concept, de Certeau also criticizes urban cartographies that fail to capture the performative and explorative aspects of walking. In urban or architectural design practice, the first step in beginning to understand a place to realize a design is often through a map, indicating that the dominance of urban cartographies is beginning to limit systematic ideas. Walking can be a way to begin by rejecting these systematic ideas. Doina Petrescu (2015) emphasizes de Certeau's walking concept as challenging to define and represent due to its ontological nature. Walking enables a way of "being in the world" that resists the rigid structures imposed by urban planners and overseers, offering a more fluid and personal experience (Petrescu, 2015). Another critical element in "walking in the city" is the issue of speed in perception and exploration, as modern urban life - shaped by fast-paced transportation and connectivity - alters perception, causing disconnections between space and subjective performance. Careri (2002) describes the modern city as a dynamic space filled with rapid movements, changing vantage points, and constant spatial transformations:

> The Futurist city was crossed by flows of energy and eddies of the human masses, a city that had lost any possibility of static vision, set in motion by the speeding vehicles, the lights and noises, the multiplication of perspective vantage points and the continuous metamorphosis of space (p. 68).

By the late 20th century, walking, which has the potential to criticize the city from different perspectives, had gained metaphorical meanings beyond daily life, such as romantic walking, hiking, walking for health, pedestrianism, window shopping, and marching in groups. Baudelaire (1995) even depicted walking as a form of political expression, highlighting its potential to engage critically with the urban environment.

1.2. Dismantling Walks with a Critical Lens

In this article, various walks and walking styles are dismantled to present walking as a critical spatial practice, with each approach discussed concerning its critical aspects. Numerous philosophers, for instance, walked as a means of reflection or *musing*. Despite physical pain, Nietzsche found that walking was essential for thinking; for him, *thinking was something to do on the road*. He did not trust thoughts that were formed without physical motion, emphasizing the importance of *thinking while walking and walking while thinking* (Gros, 2017). Similarly, Rimbaud and Rousseau walked to think, *concentrating on thoughts* during this *intense working moment*. While Rimbaud considered himself *"just a pedestrian,"* Rousseau believed that only through walking could he truly think, collect his thoughts, *create, and find inspiration* (Gros, 2017). Thoreau, on the other hand, walked *to write*, preferring *to walk around* his home, viewing proximity as sufficient for his explorations (Gros, 2017). Nerval *questioned* the purpose of walking, and Kant walked in anticipation of his thoughts emerging from within (Gros, 2017).

In all these examples, the dynamic interplay between space and subjective experience is profoundly introspective. The places walked and the walkers mutually redefine each other, but these redefinitions *lack a critique of the space* itself. Consequently, in some instances, the environment is rendered secondary or reduced to mere visuality. Although "walking for thinking" presents a way of "being in the world," its critical potential is limited, as it remains centered on *the introversion of one's own mind*.

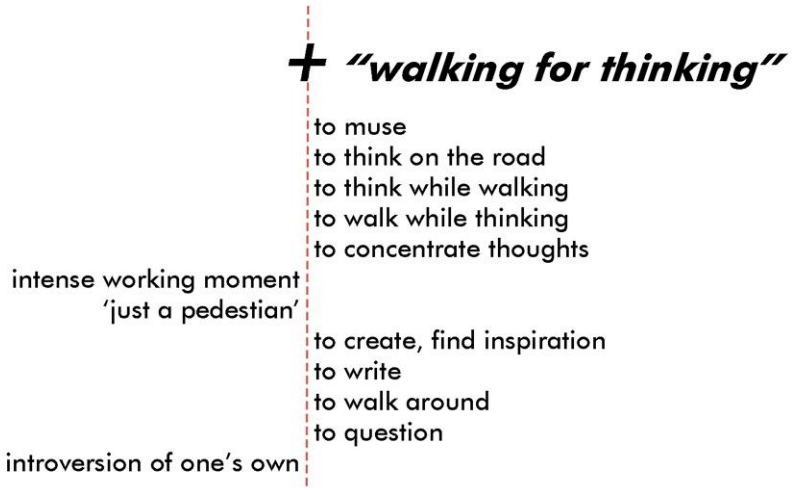

Figure 1. "Walking for Thinking" notions (Altunok and Dursun Çebi, 2021).

The critical aspects of walking can be traced back to Baudelaire's (1995) concept of the *flâneur*. Derived from *flânerie*, meaning *to stroll* or *to loaf around*, the *flâneur* is an observer who engages in *disinterested curiosity*, *walking through crowds* yet *without being part of it*. *Flâneries* and *curiosity* make the walking act an ideal vehicle for *personality formation and learning through the body*. It is an extraordinary *anthropological activity* because it arouses a constant concern for understanding, *finding one's place in the structure of the world*, and *questioning one's bond with others* (Le Breton, 2003). Frédéric Gros (2017) argued that the *flâneur* arises from the interplay of *city, crowd, and capitalism*. For the *flâneur,* the city becomes a labyrinth of perspectives with its passages, dangers, and surprises, while capitalism is critiqued as the "reign of the commodity" and "commercialization of the world" (Gros, 2017).

However, the figure of the *flâneur* has been critically examined by Springgay and Truman (2018) as a gendered, racially, and geographically marked construct of the 19th century. As a male figure who enjoys considerable leisure in a specific urban setting, the *flâneur* remains anonymous and detached, ostensibly free to observe his surroundings (Springgay and Truman, 2018). This detachment limits their criticality, as their observations neither *suggest interventions* nor offer representations that engage with the realities they perceive. However, the continuation of their state of walking in crowds in the streets and passages of the modern city with their disinterested curiosity by exploring the accelerating flows in the city could have been ensured by being more inclusive in their context - so much so that neither today's *flâneur* nor the critical walker can be defined physically and mentally by specific norms, whereas it is

important to think of diverse bodies and minds opening up to the world and matter through walking.

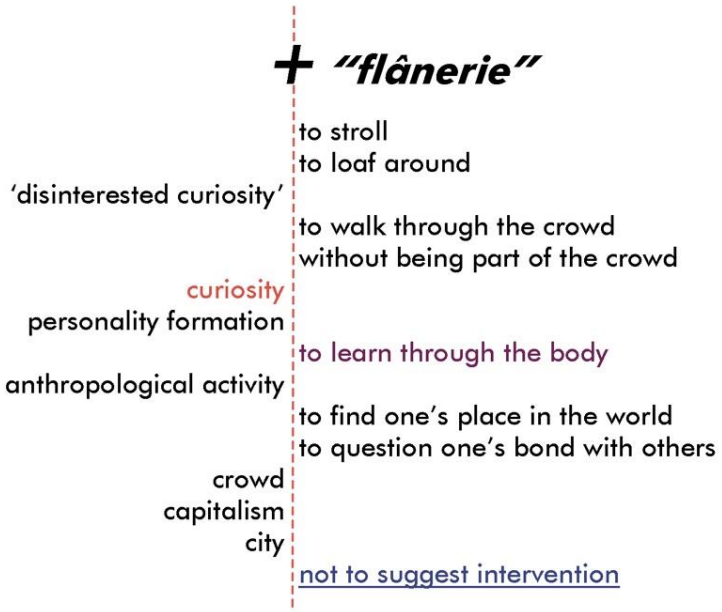

Figure 2. "Flânerie" notions (Altunok and Dursun Çebi, 2021).

Following Baudelaire's introduction of the *flâneur* concept in the 19th century, this notion gained further attention in the 20th century, notably through Walter Benjamin (2003), who regarded the *flânerie* as both an analytical tool and a way of life. The 20th century, marked by a paradigm shift in epistemology, also saw transformations in everyday life. Due to the dynamic nature of daily practices, walking evolved into a critical urban practice. In this context, it is essential to examine two Dadaist excursions conducted in 1921 and 1924. The Dadaists are often considered the first group to embrace walking as a *collective activity*. Their inaugural excursion in 1921 aimed to *move both artists and art* beyond museums and galleries, bringing them directly to *the street* and the public. This gathering, held on April 14, 1921, was *announced to the public* through flyers and press releases, and artists' participation was *documented with photography*. This excursion became more communal in that it was organized collectively by a group of people who came together for the same purpose, while also inviting participants from the public. In this respect, it also provided a critical view of art, art space, and the city.

Figure 3. Dada "Excursions" notions (Altunok and Dursun Çebi, 2021).

In 1924, a second Dadaist excursion took place, this time *without a pre-determined aim for walking*. The routes were selected *randomly* from a map, marking a potential shift from Dadaist urban actions to Surrealism (Özcivanoğlu, 2019). This transition is evident in the focus on *the creative potential of the unconscious mind*. Careri (2002), referencing André Breton's Surrealist Manifesto, explains that the 1924 excursion was an investigation of *unconscious parts of the city*. Breton described "Surrealist Deambulation" as a form of walking without a defined path, *exploring the space between waking life and dream life* (as cited in Özcivanoğlu, 2019, p. 22). The two excursions differ in their critical orientation: while the 1921 Dadaist excursion had a clear goal - bringing artists from galleries to the streets - and involved documentation and collective participation, the Surrealist deambulation had no defined purpose, no recording, and no collective structure. Consequently, the Dadaist excursion arguably holds greater potential for producing critical reflections on the spaces traversed.

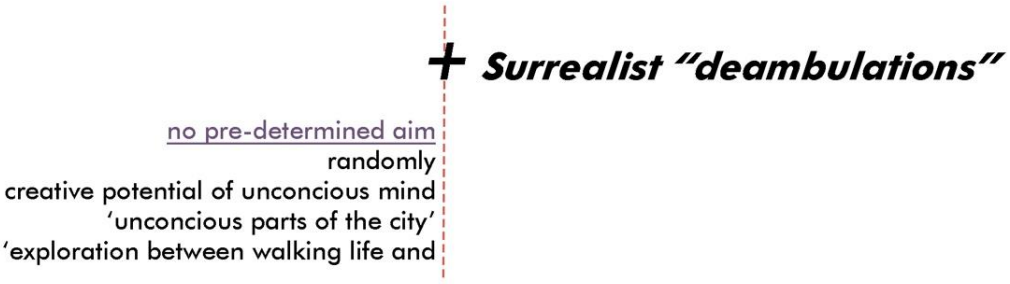

Figure 4. Surrealist "Deambulations" notions (Altunok and Dursun Çebi, 2021).

Following the discussions on *flânerie*, Dadaist excursions, and Surrealist deambulations, the concept of *dérive*, meaning "to drift", represents another critical approach to experiencing and inhabiting the city. Introduced by the Lettrists, *dérive* was envisioned as a *collective act* and an *alternative way of inhabiting the city* (McDonough, 1994). It can be described as an *experimental body of behaviors* closely tied to the urban environment - a technique of passing through varied ambiances in usual (Andreotti and Costa, 1996). Critically, the Lettrists diverged from the Surrealists by *criticizing their focus on the unconscious*, instead emphasizing the city's *transformative potential and revolutionary energies* (Özcivanoğlu, 2019). Another distinctive feature of *dérive* was the *cross-checking of impressions* among participants, which reinforced the collective, participatory nature of the practice. Lettrist texts documented these urban explorations, eventually becoming *"manuals for using the city"* (Careri, 2004). Significantly, *dérive* led to a reimagining of *cartography*; these early maps of movement utilized fragments, collage, and intentional disorientation, laying the groundwork for further discoveries and reinterpretations of mapping practices.

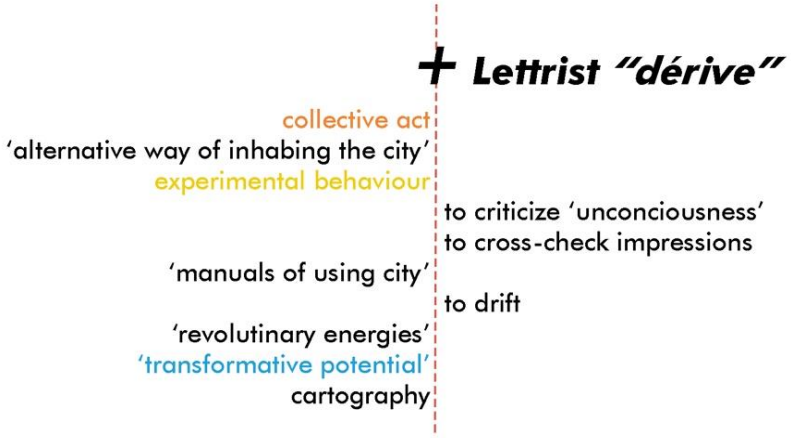

Figure 5. Lettrist "*Dérive*" notions (Altunok and Dursun Çebi, 2021).

The concept of ***dérive*** gave rise to what is known as "Situationist psychogeographical discoveries". Building on ***dérive's*** transformation of cartography, Guy Debord introduced *situationist cartography*, which aimed *to map the sensory and perceptual experiences* encountered while navigating the city. These psychogeographical discoveries offered performative tools to represent the experimental act of walking, thereby infusing a critical dimension into the experience. Debord (1981) described these mapping practices as explorations of *psychological climates*, attempting to visualize the *emotions* and *behaviors* of the walkers. These maps prominently featured arrows to denote *directionality and itineraries*, which served as core elements of expressing movement and subjective experience through urban space. The depiction of walking and the psychological context in which it unfolds, as explored through Situationist cartographies, holds significant value. This importance lies not only in its proposal of a novel form of cartography but also in the way it utilizes representation as a method of recording spatial and experiential phenomena.

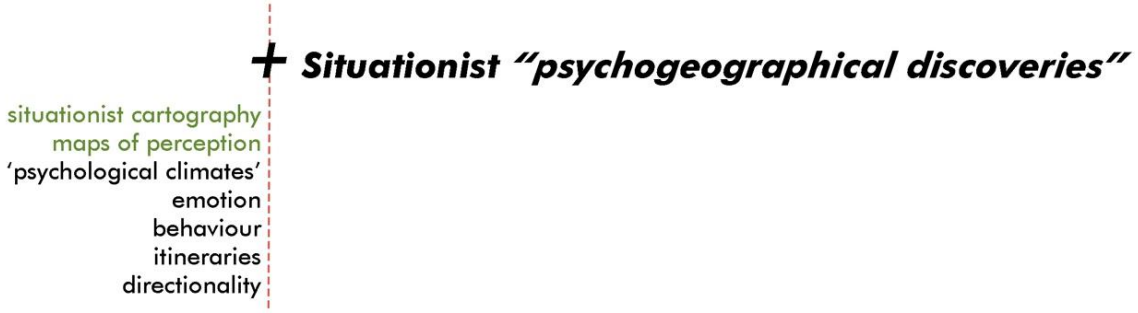

Figure 6. Situationist "Psychogeographical Discoveries" notions (Altunok and Dursun Çebi, 2021).

1.3. Walking Table of Criticism

In this study, various forms of walking styles, theories, methodologies, events, and walking as an art - collectively referred to as walking knowledge - have been addressed and discussed to highlight their core aspects and ideas (Figures 1–6). According to this dismantling and theories on critical spatial practices, spatial practices that arise from walking practices performed

critically to create awareness, put experimentality, curiosity and learning through the body forward, suggest a performative representation tool, have a transformative potential, suggest an intervention to urban space are decided and referred as “critical walking” description of this article (Figure 7). In addition to these, the “critical walking” methodology involves performativity, participation, innovation, motion and a self-critique of top-down perception of the universe (Tümerdem, 2018).

Figure 7. “Critical Walking” notions and aspects (Altunok and Dursun Çebi, 2021)

Within this article, it is propounded that critical walking methodology —which possesses these stated aspects— paves the way for individuals to criticize their surroundings, increase their awareness of the city, and easily represent “other” spatial data according to their experience in the city. Thus, making sense of and exploring the specifically spatial aspects of interdisciplinary processes or practices that operate between art and architecture becomes possible. The individual becomes open to new kinds of relationships that emerge between subjects and objects in architectural design and makes discussions about future transformations and interventions for that specific space. To understand where “critical walking” is situated among all previously stated walking styles, a “walking table of criticism” was created. These aspects are ranked according to how visible the criticality is. Since criticism appears as concrete as possible only in the act, such features as transformative potential, suggesting an intervention and performative representation tool are crucial for “critical walking.” Therefore, in the following figure, all previous walks that were mentioned in the literature review are evaluated and ordered according to criticality (Figure 8). This table is a tool that includes the definition of “critical walking,” its position among other walks, and the characteristics it should have, and it has become the general lexicon of the walker. For these reasons, it has paved the way for determining the frame of this article’s “critical walking and mapping” strategy.

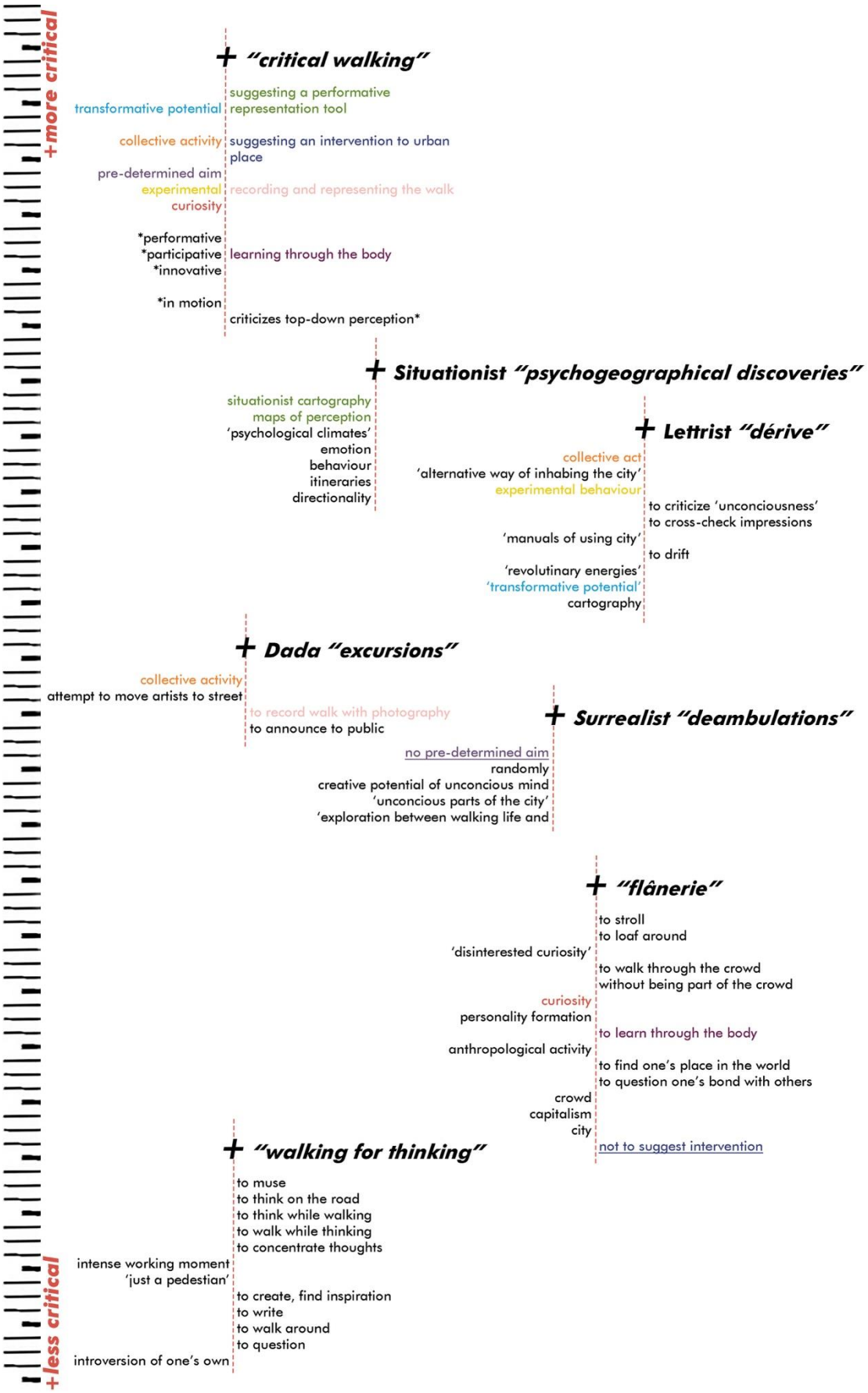
+more critical
+ "critical walking"
suggesting a performative representation tool
transformative potential
collective activity
suggesting an intervention to urban place
pre-determined aim
experimental
recording and representing the walk
curiosity
*performative
*participative
*innovative
learning through the body
*in motion
criticizes top-down perception*
+ Situationist "psychogeographical discoveries"
situationist cartography
maps of perception
'psychological climates'
emotion
behaviour
itineraries
directionality
+ Lettrist "dérive"
collective act
'alternative way of inhabing the city'
experimental behaviour
to criticize 'unconciousness'
to cross-check impressions
'manuals of using city'
to drift
'revolutinary energies'
'transformative potential'
cartography
+ Dada "excursions"
collective activity
attempt to move artists to street
to record walk with photography
to announce to public
+ Surrealist "deambulations"
no pre-determined aim
randomly
creative potential of unconcious mind
'unconcious parts of the city'
'exploration between walking life and
+ "flânerie"
to stroll
to loaf around
'disinterested curiosity'
to walk through the crowd without being part of the crowd
curiosity
personality formation
to learn through the body
anthropological activity
to find one's place in the world
to question one's bond with others
crowd
capitalism
city
not to suggest intervention
+ "walking for thinking"
to muse
to think on the road
to think while walking
to walk while thinking
to concentrate thoughts
intense working moment
'just a pedestian'
to create, find inspiration
to write
to walk around
to question
introversion of one's own
+less critical

Figure 8. Walking *table of criticism* (Altunok and Dursun Çebi, 2021).

2. Situating Otherness: From Theoretical Framework to Site-Specific Methodology

After establishing the foundational lexicon of critical walking within the "Walking Table of Criticism," and assembling the theoretical framework, this study proceeds by situating the site-specific methodology and critical walking case study. The article aims to examine and discuss "other" spatial data on city, people, and movement, thereby uncovering "other" languages expressed through bodily acts and movements in urban spaces. This research, which seeks to experience the city by walking through the "other," aims to specialize and deepen the knowledge of space through the concept of the "other," as well as to transform urban space into a space of discovery and questioning by going beyond the conventional. The concept of the "other" highlighted here is grounded in the occurrence of unexpected events and situations, the actions of living beings, unfamiliar encounters, and unique spatial assemblages and conditions. These elements transcend conventional perspectives, enriching personal experiences and fostering a critical understanding of the city. This pursuit of otherness through the case study involves mapping unexpected events, situations, actions, or entities that relate closely to otherness, generating a new type of representational tool that facilitates "another" language for interpreting the city. Aslıhan Şenel (2013) contends that mapping as performance provides an alternative to conventional, top-down urban representations, enabling an interpretive and critical perspective on the intricate relationships within cities. As Şenel (2013) describes, this alternative approach aligns with the metaphor of "another" language by expanding the possibilities for representation in architectural design. Additionally, the concept of critical walking, as developed in this study, emphasizes an in-situ, site-specific practice that prioritizes the walker's subjective experience and their critique of the traversed environment. Consequently, conducting the case study within this framework is essential for advancing the article's investigative approach.

To locate an appropriate case study, a space physically within the city yet perceptually excluded from it due to its spatial transformation was sought. The spatial shift sought in the city should trigger the spatial awareness of the walker by creating a difference between scales, such as by rising above the ground, going below the ground, separating large parts, and creating undefined spaces, thus leading to the discernment of otherness. According to de Certeau (1988), walking as a spatializing and space-constituting act is defined by its persistent interaction with the surface. Walking and representing this act in a place devoid of ordinary spatial practices reveals an opportunity to explore how the body relates to space not through conventional practices but rather through those that actively engage the body, fostering heightened spatial awareness. Thus, activating the body-space and subject-object relationships could reveal "another" form of representation in architectural design and uncover "another" language that maintains communication between body and space.

Here, the study interprets the experience of being physically within the city yet perceptually outside it as a form of introversion and contextual disconnection. It seems that this location, which is physically located in the city but perceptually otherized, may lead the walker to be

isolated from the time and space they are in, to look critically while distracted, and thus to better identify otherness in space. De Certeau's (1988) concept of "traveling incarceration" aligns with the type of space this article investigates. In describing a train, de Certeau (1988) uses it as a metaphor for a closed module that encapsulates movement and perception:

> Inside, there is immobility of an order. Here rest and dreams reign supreme. There is nothing to do; one is in the state of reason… Outside, there is another immobility, that of things, towering mountains, stretches of green field and forest, arrested villages, colonnades of buildings, black urban silhouettes against the pink evening sky, the twinkling of nocturnal lights on a sea that precedes or succeeds our histories (p. 111).

He questions, "What is happening? Nothing is moving inside or outside the train" (De Certeau, 1988, p.111), suggesting that, for an individual within this module, neither the inside nor the outside conveys motion perceptually. This binary relationship, in which the outside and the inside are often isolated from each other, in a visual relationship where speed makes it difficult to see, where the movement of one is quite dominant over the other, is a description of a "rational utopia" according to de Certeau, as it gives the feeling that nothing is actually moving when the parties are isolated from each other. Conceptualized as a "rational utopia", this type of space presents a setting suitable for the study's critical walking experiment. In this context, an urban element, a structure or a part of the city that behaves as the "rational utopia" de Certeau speaks of and becomes a closed module within itself, where movement turns into an immobile order because it is disconnected from its surroundings even though it incorporates movement, is searched. In connection with this, Istanbul's Marmaray line - an enclosed, seemingly disconnected part of the urban environment that precludes everyday walking practices - emerges as a compelling site to explore "another" language through critical walking. Indeed, by drawing a border parallel to the shore, the Marmaray line separates the two sides by establishing and demolishing many relationships at different scales above and below ground, and the movement within itself becomes decontextualized by differentiating from the movement outside. The Marmaray line, with its surrounding boundaries, may have become a closed module or an immobile order, with only permitted points of inclusion.

2.1. Critical Walking and Mapping Strategy

From this point, the "critical walking" case study was conducted along the Marmaray line between Suadiye and Feneryolu stations (Figure 9).

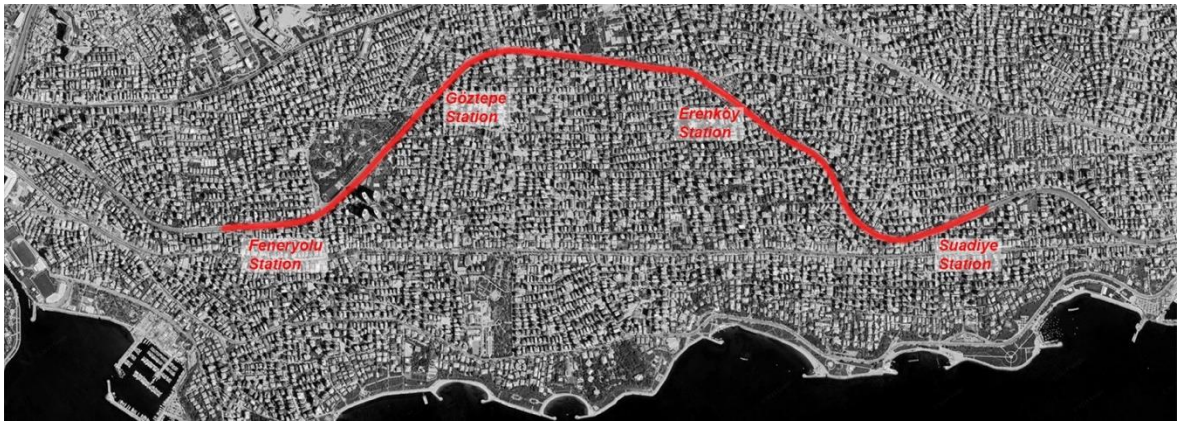

Figure 9. Critical walking and mapping route (Altunok, 2024).

The previously discussed general lexicon of “critical walking” served as the core framework, guiding an approach that emphasized an uncharted, map-free path, with a concurrent extraction of elements that represent the “other” within this distinct “rational utopia” - the Marmaray line - using mapping techniques. Three principal layers can be identified to outline the structure of the walking and mapping strategy (Figure 10).

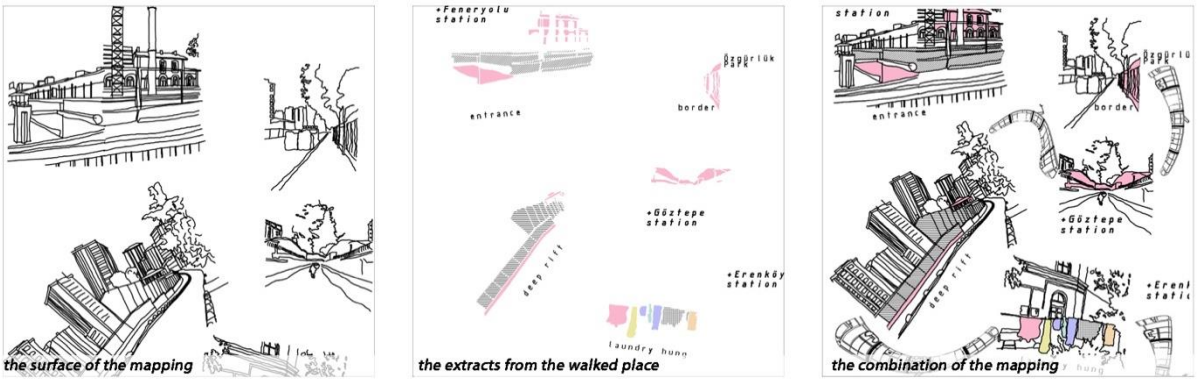

Figure 10. Three main layers of the critical walking and mapping strategy (Altunok, 2024).

The first layer, *the surface of the mapping*, maintains a strong connection with the context of the walked space. In this study, the surface of the mapping consisted of partial traces that were perceived while walking and delineated between extracted elements. The second layer comprises *the extracts from the walked place*, which capture aspects connected to the “other”, defined here as unconventional, disruptive, unfamiliar, out-of-context, unexpected, strange, and contrasting. The walker used a glossary derived from the “critical walking” lexicon and the “rational utopia” metaphor to systematize the extracts. This glossary includes terms like scale, border, transition, wall, edge, underpass, overpass, dead end, and old vs. new.

As the Marmaray line follows the path of an old suburban line, remnants of the past - such as older buildings bordering the line, high retaining walls due to the varying elevation of a rapidly changing city, or boundaries marked by barbed wire - are visible along the route. The Marmaray line, a vehicle of an outsized scale dividing the neighborhood into two, impacts the pedestrian and vehicle crossings within the neighborhood’s scale, to which it does not belong. Its dominance is seen in how it forces people to line up at a border where space narrows, creates viaducts through descent, produces sterile underground crossings, and disrupts neighborhood continuity at its stations. The glossary terms - such as scale, border, wall, and edge - were chosen to capture these “other” spatial features.

The third and final layer is *the combination of the mapping* process itself, where the mapping surface and extracted spatial data from the walked route are united through actions like cutting, tearing, overlapping, subtracting, highlighting, expanding, explaining, erasing, outlining, scanning, annotating, scribbling, narrowing, drawing lines… This “rational utopia” approach to critically walk and map the Marmaray line revealed the “otherness” of spaces between Suadiye and Feneryolu stations through unconventional representational forms that diverge from traditional mappings (Figure 11).

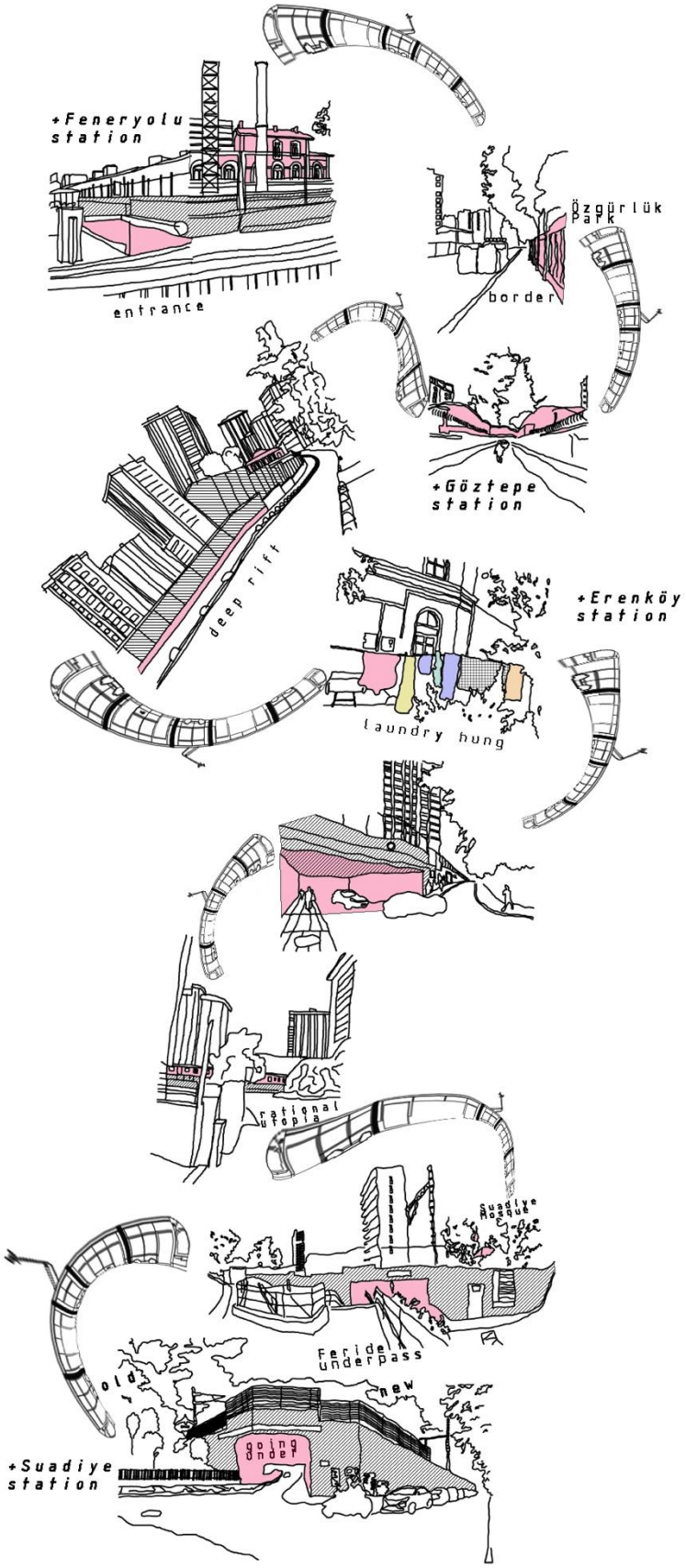

Figure 11. “Others” of Marmaray Line Mapping (Altunok and Dursun Çebi, 2021).

3. Discussion on the Mapping

The mapping produced here is not a fixed, finished representation with clear boundaries, differing significantly from traditional architectural design depictions. Since new recordings can be made from different perspectives - or even from the same perspective at different times - the mapping allows the discussion to be approached from varied angles. While this mapping does aim to critique certain events, situations, and movements encountered during the walk, the convergence of these specifics also opens pathways to explore other perspectives and discussions. Conventional urban and architectural design tools also rely heavily on cartography and maps to convey specific information, but mapping through walking is more responsive to other perspectives and debates as it privileges the view of the walker from ground level rather than the God's eye view.

Beginning the examination of "other" spatial data surfaced through the mapping, the Suadiye station - where the walk commenced - embodied elements marked by the "rational utopia" metaphor, including scale, the old, the new, and underpass dynamics. Here, the mapping emphasized the towering wall that supports the Marmaray line far above the local ground level, rendering it as if placed from above, detached from the city's fabric. The historic Suadiye Station left disconnected at the edge of this towering wall, is represented through sketched lines, attempting to assert its presence within the map. Following this, the mapping captured Feride underpass, a four-ramped pedestrian bridge near Suadiye Mosque, emphasizing themes of transition, boundary, and underpass dynamics. The limited one-meter stretch left between the Marmaray line and the mosque forces worshipers into a confined space, highlighting how the imposition of top-down planning can shape daily interactions with urban infrastructure. Additionally, bridges supporting this "rational utopia" become walls, dwarfing the surrounding neighborhoods, with some sections adorned with graffiti - a manifestation of "another" form of expression (Figure 12).

Figure 12. "Others" between Suadiye and Erenköy Stations (Altunok, 2024).

As the walk proceeded to Erenköy Station, the mapping documented another instance of "otherness" - laundry hanging in the garden of the historical Erenköy Station, symbolizing how older station structures have been sidelined or repurposed for functions unrelated to their original design. This was further emphasized along areas where the road level ascends, leaving the Marmaray tracks below surrounded by towering retaining walls that carve deep rifts in the city's fabric. The historical Göztepe Station, disconnected and relegated to a marginal role, sits where the Marmaray line intersects the road, sidelined by the city's top-down planning approach. The new Göztepe Station, constructed as a standardized project seemingly placed

without adaptation to its context, blocks the natural pedestrian flow from both sides of the street. This misalignment was represented in the mapping by mirroring the station's image to emphasize its discordant fit with the neighborhood. One of the "others" recorded in the mapping was Özgürlük Park, a recreational area secluded from both the Marmaray line and adjacent roadway by fencing. Here, a critique emerged on the isolation of potential communal spaces, reflecting the ways top-down infrastructural projects constrain urban spaces. The walk ended at Feneryolu Station, where the pedestrian entrance had been relegated to the side of a vehicular road - an arrangement critiqued in the mapping for overlooking pedestrian-vehicle dynamics in the placement of the Marmaray line (Figure 13).

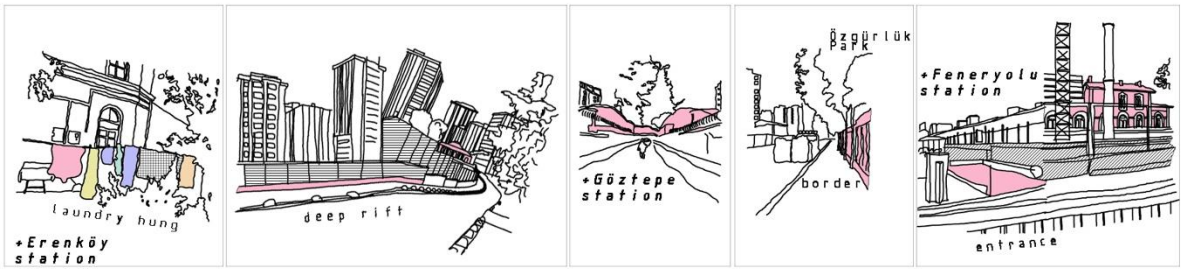

Figure 13. "Others" between Erenköy and Feneryolu Stations (Altunok, 2024).

The critical walking and mapping experiment along the Marmaray line does not seek to provide a conclusive commentary on urban design but rather aims to foster a language that opens up continuous dialogue. This methodology pursues "another" mode of language that critiques urban space while inviting further inquiry and debate rather than establishing conclusions. In this respect, this mapping remains an adaptable foundation for future discussions and reexaminations from multiple perspectives.

4. Conclusion

In this study, architectural representation, traditionally shaped by orthographic views and perspective - a legacy tracing back to Renaissance models - was critically examined in light of everyday practices that prioritize the observer's experiential interaction with urban spaces. Such an approach echoes Judith Butler's (1988) assertion that bodies engaged in public performative acts are not merely passive objects inscribed with cultural codes. Instead, they actively engage with and animate meanings within given frameworks, making visible nuanced interpretations. Building on this idea, this article focused on walking in the city and mapping as critical acts that reveal "other" spatial data - unique insights on city, people, and movement that foster a deeper spatial awareness and reveal "other" languages rooted in bodily acts and urban movement.

The metaphor of "other" languages was used to suggest unconventional forms of representation, drawing from semiotics to convey the potential of messages in nontraditional forms. To illustrate walking as a critical spatial practice, various forms of urban walks - each offering its own critique - were analyzed. This led to the development of a critical walking methodology, tested through a case study along Istanbul's Marmaray line, aimed at surfacing "other" spatial insights and alternative representation methods.

The mapping derived from the Marmaray case study became an evolving form, inviting continuous reflection on critical walking. This approach suggests that critical spatial practices can be expanded upon, each perspective and re-walk enriching the insights they provide. As the case study unfolded, critical walking exposed Marmaray as a “rational utopia” isolated from the neighborhoods it intersects, eroding pedestrian connections, disrupting historic and contemporary ties, and fragmenting visual and physical continuity. Thus, walking - by highlighting “otherness” - affords an open, adaptive awareness of the city, fostering a critical lens that enhances our capacity to engage with and articulate “other” languages in urban spaces through bodily actions.

In sum, critical walking and mapping experiments can be replicated in follow-up research in pursuit of various keywords with different people’s experiences. It can also provide an introductory perspective on fieldwork and its recording for undergraduate and graduate students doing research and studies in fields such as architecture and urban design. By establishing its own subjective methods in research design, this study becomes inclusive with the capacity of the tools it deals with to vary according to the individual. All in all, critical walking not only critiques existing urban structures but cultivates an experiential and transformative way of becoming more conscious, engaged inhabitants who are attuned to the complex, layered languages of the city.

Declaration of Ethical Standards

The article complies with national and international research and publication ethics.

Ethics Committee Approval was not required for the study.

Conflict of Interest

There was no conflict of interest between the authors during the research process.

Authors’ Contributions

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The authors take full responsibility for the content and any modifications made during this process.

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Research Article

The Effect of Cantilevers on Interior Lighting: Case of Denizli Merkezefendi Library

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Abstract

Libraries are buildings where important sources of information are located, serving to make information accessible, to encourage access to information and to increase the general level of knowledge of the society. In the design of these spaces where users spend long hours for research, reading and study, adequate and qualified lighting is a very important and important issue in terms of reader comfort and protection of books. In modern library buildings, in individual, group and collective study areas with rich space options, the lighting of the spaces according to the nature of the study plays a supporting role in visual comfort and function. On the other hand, the correct use of light can sometimes be interrupted by some mass facade movements that increase the aesthetic appearance in the design of architectural buildings and may negatively affect the visual comfort in the building. In this study, the effect of aesthetic and functional façade movements on natural lighting in buildings is investigated. In the field study part of the study, Denizli Merkezefendi Municipality Central Library, one of the examples of modern library buildings, is discussed. As a study methodology, literature research on natural and electric lighting design in libraries was conducted, and lighting criteria in buildings were analyzed. Dialux program was used for data analysis and lighting simulation of the building. As a result of the examinations made on this model, the natural lighting effects in the building were analyzed through Denizli Merkezefendi Municipality Central Library and recommendations were made. In the conclusion part of the study, it is shown that cantilever masses can have direct and indirect negative effects on providing the required illumination level for the function in the interior space in terms of the determined criteria.

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1. Introduction

Libraries are spaces that are used for research and study for long hours during the day, and in some cases, they are used repeatedly due to their function in the process. In the past, libraries were only places suitable for reading and research, but in the current era, with the increasing population and developing information technologies, developments in the field of culture and education, libraries have become complex places where the information acquired can be processed, shared and discussed individually and / or in groups (Sema, 2022, pp. 263-283). According to Watson (2017), 21st century library buildings are defined as social spaces that can be used individually and in groups, where people interact and have technological infrastructure. On the other hand, libraries contribute to the economic and socio-cultural development of societies, support education, enable the transfer of information between generations, and on the other hand, try to keep up with the changes caused by current technological developments (Al Şensoy & Sarı, 2020, pp. 285-310). Today, technological equipment, digital materials and resources are of great importance for each individual to effectively learn and teach. With the evolution of these needs in accordance with the age, architectural spaces have been transformed and library buildings have become environments where not only information is acquired but also shared and discussed (Freeman, 2005, pp. 1-10). Today, a new generation of libraries inspires as a revitalized, dynamic learning resource, a hub for intellectual community and scientific entrepreneurship.

Planning new library spaces is closely linked to creating spaces where people can interact with the collections, information technologies and services they need. Those who design libraries and provide activities/services are also potential users of the library. Therefore, the user is at the center of every process in the design of the library (Mcdonald, 1996, pp. 13-42). Human needs and activities, which are factors in the architectural and interior design of libraries, can be considered as the main input of the process. These buildings are designed by taking into account the psychological needs of users and employees, but it is also necessary to avoid elements that will negatively affect people's working performance. One of the important physical parameters affecting the working performance of users in libraries is lighting. Since the first library buildings were constructed, lighting has been recognised as one of the important and decisive design elements of library architecture. According to Kandişer (2003), the choice of lighting system for a library is a very complex situation, because the lighting system should be able to respond to many completely different purposes. Providing the reading function in a comfortable environment affects the interior appearance of the space and the exterior appearance of the building, so the right lighting decisions must be made. The use of an artificial lighting system integrated with a natural lighting system is more suitable for multi-user buildings such as libraries (Thompson, 1989).

In this context, the effect of the form and architectural elements of the space in library buildings on the efficiency of the lighting system and user comfort cannot be ignored. In particular, architectural elements such as cantilevered overhangs can significantly affect the distribution of natural and artificial lighting in the space. Overhangs can be used in buildings to control the amount of daylight entering (Othman et al., 2024, pp.570-571). The amount of light and solar heat entering a building depends on the width, reflectivity, and geometry of the overhangs,

reducing the cooling requirements of the building (Sghiouri et al., 2018, pp. 17). According to Lee et al. (2018), overhangs may unintentionally increase lighting energy consumption because they may cause working sessions to require more artificial lighting. As a result, the effects of cantilever overhangs on lighting should be designed in a balanced way, taking into account user needs and the function of the space. With proper lighting planning, the positive effects of these elements can be increased and their negative effects can be minimized.

The hypothesis of this study is that the positive visual impact created by the cantilever masses on the building has negative functional effects on the spaces under the cantilever. The aim of this research is to investigate the effect of natural and artificial lighting in the library and to investigate the effect of the existing cantilever mass on natural lighting in such buildings. In this research, analyses were made on the example of Merkezefendi Municipality Central Library, which is located in Denizli and is intended to become an important social-cultural center in Denizli. The parameters that make up the analyzes were determined as the main criteria, primarily the cantilever projection distance, cantilever mass direction and building material. In line with these criteria, models of the building in Dialux program were created and simulations were made with different scenarios. At this point, the potential effects of the visual and spatial effect of the cantilever mass were discussed in the study by considering possible scenarios in case the cantilever is designed in different sizes and different directions.

2. Lightings and Visual Comfort Factors in Libraries

The basic actions in modern libraries can be listed as reading, writing, searching for publications on the shelves, borrowing/lending publications, etc. In libraries, it is important to create suitable environmental conditions for users to perform their actions efficiently in terms of efficient use of space. Light acts as the basic physical element of the act of seeing in a space. Providing visual comfort is realized by designing the lighting in accordance with the required quantity and quality. As in every area, there are two types of lighting in library spaces: natural and artificial. The variables affecting natural lighting are illuminance, daylight factor, luminance spread, prevention of glare, shading, directing lighting and the colour of light (Erlalelitepe & Aral & Kazanasmaz, 2011, pp. 39-51). The aforementioned visual comfort conditions are taken under control with various lighting arrangements. When these arrangements are made in accordance with the space and intended use of the space, they prevent distraction and increase productivity. The characteristics of various materials in libraries also affect the lighting design. Lighting arrangements that take into account the different needs of these materials allow users to access them comfortably and improve the library experience (Ünver, 2011, pp.127-138).

However, the characteristics of various materials in libraries influence and shape the lighting design. Different types of materials such as visual, audio, microfilm and electronic materials play an important role in determining lighting arrangements (Feyyaz, 2013, pp. 23-24). If lighting arrangements are listed;

- *Light Sources:* Natural or electric light sources to be used in lighting design. Along with daylight, various types such as fluorescent lamps, LEDs, halogen lamps can be counted

under this heading. The power, color temperature and distribution of light sources affect lighting arrangements.

- *Lighting Equipment:* Equipment such as luminaires, reflectors, lighting control devices to be used in lighting design are determined. This equipment is selected in accordance with specific lighting needs and the characteristics of the space.
- *Surface Materials:* Surface materials of the space such as walls, floors and ceilings are taken into consideration when making lighting arrangements. These materials have a significant effect on the reflection, absorption and diffusion of light.
- *Area of Use and Function:* The intended use and function of the space are taken into consideration when determining lighting arrangements. For example, different lighting arrangements may be required for an office, a home, a store or an art gallery.
- *Energy Efficiency and Sustainability:* Energy efficiency and environmental sustainability play an important role in lighting design. For this reason, energy-efficient lighting systems are preferred and necessary measures are taken to prevent light pollution.

By combining these materials and factors in the building, an appropriate and effective lighting arrangement can be created. In libraries, various activities such as searching for books, studying, reading books, and collaborating in audio halls are carried out, and all of these activities are based on the functions provided by lighting (Baltacıoğlu, 2022, pp. 90-91). Stated in his study that good lighting is necessary for users to use libraries effectively and that not only electric light but also natural light affects the efficiency of users, the quality of the space, and as a result, the time the user will spend in that space. In this respect, it can be said that utilizing daylight in the space is an important part of the design.

As with the lighting requirements of every physical space, libraries also need to consume energy resources (electric lighting) in cases where natural (daylight) lighting is insufficient. However, since this study investigates the effect of cantilevers on the utilization of daylight, the issue of electric lighting in libraries is briefly touched upon and natural lighting is mainly emphasized. Since the first emergence of library buildings, it can be said that lighting has been one of the most important design elements shaping library architecture. Vitruvius (90-20 BC), one of the ancient architects, gave information about library buildings in his work De Architectura. In order to get maximum efficiency from daylight, he mentioned the necessities such as library buildings having skylights, wall windows facing east, etc.

Since the early 18th century, developments in science and technology, changing and evolving needs have enabled new planning in library buildings as in many architectural buildings. Lighting has become one of the most important design criteria in new generation library buildings. It can be said that it is imperative to make the best use of daylight today due to the lack of a light source that has all the properties of daylight (the healthiest light source) and the cost of energy.

In the natural lighting design of the building, the location and dimensions of the daylight openings should be carefully planned in line with the climatic-geographical location, (local) light and heat values, taking into account the functions of the spaces. According to the research

conducted and published by Edward T. Dean in 2005 within the scope of the project called Library designs; daylight openings should meet (control) the following four elements.

- *Solar control:* To reduce any increase in heat load and to control direct glare.
- *Glare control:* To create and maintain comfortable brightness distribution, including no direct bright sky image in the normal direction of the image.
- *Variation control:* Avoiding inadequate local light levels that any user would perceive.
- *Control of Contrasts:* Reducing the difference in intensity between main light and fill light to create a balanced illumination in the space (Edward, 2005, pp.11-12)

According to the TS-EN 17037 Standard in force in Turkey, the criteria for daylight illumination,

a. Ensuring daylight illumination
b. Establishing a visual connection with the external environment
c. Exposure to sunlight
d. Protection against glare

as the most important criteria. Information on these criteria, gathered under four headings, is briefly given below;

2.1. Daylight provision

According to TS-EN 17037, the need for illuminance in spaces should generally be met by daylight. The minimum, medium and high average levels recommended for daylight illuminance are ≥300 lx, ≥500 lx and ≥750 lx respectively. It is desirable to achieve the preferred illuminance level in at least 50% of the reference plane of the space. These values may vary depending on the characteristics of the space and the window. The zone or zones where the recommended illuminance level is achieved can be of different shapes and sizes, and schematic drawings of these are given in Figure 1.

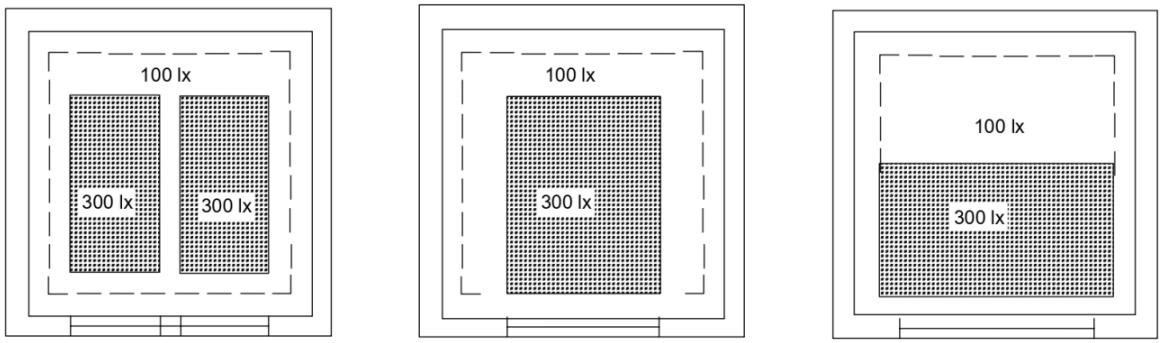

Figure 1. Schematic drawings of the location of the region where at least 300 lx illuminance level is provided in the reference plane (D. Öztürk, 2018, pp. 556-571).

In the predominantly occupied area or areas of the space, for example, the illuminance level of at least 300 lx should be maintained throughout the year for more than 2190 hours ((365×12)/2=2190), which is half of the total daylight hours in a year. Under the condition that the targeted illuminance level is ≥300 lx, the illuminance level in ≥95% of the reference plane should be ≥100 lx for ≥2190 hours per year (Zahmacıoğlu, 2019, pp. 9-10).

In libraries, the ideal daylight level should generally be between 300 and 500 lux. This value provides adequate illumination for reading and studying and reduces eye strain. However, these standards may vary depending on library design and location. Standards have been set in the field of lighting to create a healthy working environment. The European Committee for Standardization (CEN) has set the appropriate value for libraries at 500 lux. This value is recommended to support users to work comfortably and efficiently (Feyyaz, 2013, pp. 72-73).

2.2. View out

The quality of the image entering the person's visual field depends on factors such as its position within the space, window size, the number of visible layers and the content of the perceived environment. According to the TS-EN 17037 standard, an assessment is made in terms of the quality of the external environment and visual connection;

- horizontal viewing angle depending on window width
- distance of external obstacles from the structure and
- number of visible layers

It was proposed to be done according to three different variables, and three degrees were determined for each variable: minimum, medium and high. The recommended grades are given in Table 1.

Table 1. Recommended grades for visual connection with the external environment (TS-EN 17037).

Variables	Degree of Visual Connectivity with Respect to a Given Point		
	Minimum	**Medium**	**High**
Horizontal viewing angle depending on window width	≥ 14°	≥ 28°	≥ 54°
Distance of external obstacles from the structure	≥ 6 m	≥ 20 m	≥ 50 m
Layers that must be visible from at least 75% of the area used -sky -landscape -floor	Included landscape layer	Included at least two layers	All layer included

The plan and cross-section of the space can be used to determine the number of layers entering the visual field and the width of the image, i.e. the horizontal viewing angle. According to TS-EN 17037, depending on the user's position (sitting at a height of 1.20 m, standing at a height of 1.70 m), the outdoor image seen through the window is evaluated on 3 layers (sky, natural or artificial landscape/landscape, ground). Among these layers, the clear and cloudy sky layer to be included in the study is given below (Figure 2).

Figure 2. Example of Visible Layers (Adobe Stock-1, 2024; Adobe Stock-2, 2024).

In library design, external views are taken into account through factors such as the positioning of windows and optimizing the view (Figure 3). This ensures that users can see the natural surroundings and relax while indoors (Table 2).

Table 2. Recommended degrees of insolation (TS-EN 17037).

Insolation degree	Insolation duration
Minimal exposure to sunlight	1.5 hours
Moderate exposure to sunlight	3 hours
High levels of sun exposure	> 4 hours

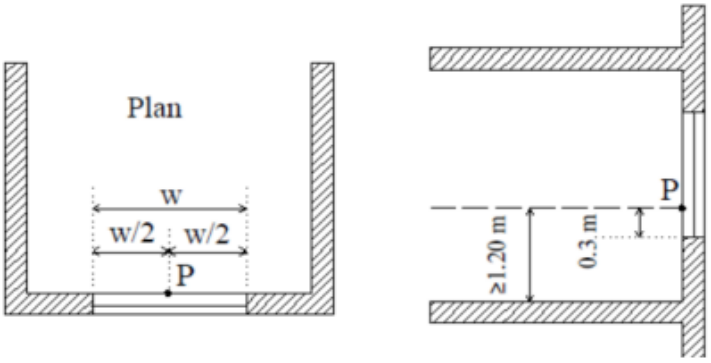

Figure 3. Reference point where insolation is evaluated (TS-EN 17037).

Clear and cloudy day data in the region where the building is located will be examined, and the data obtained will play a critical role in optimising lighting performance and increasing user comfort.

2.3. Exposure to sunlight

Exposure to sunlight, exposure to direct sunlight, is beneficial for human health. The positive effects of exposure to sunlight include vitamin D synthesis, promoting bone health, regulating circadian rhythm and reducing stress by increasing serotonin levels. exposure to sunlight is particularly important for individuals with mobility limitations (Zahmacıoğlu, 2019, pp. 4-5). In addition, the penetration of sunlight indoors can reduce the need for heating during the winter months. In summer, solar control systems can be used against the risk of excessive heat and glare. In daylight-based standards, March 21 is chosen as a reference for assessing insolation and it is recommended that the space should receive at least 1.5 hours of sunlight during that day. Assuming clear skies, three different levels of insolation are recommended: minimum,

medium and high (Table 2). As shown in Figure 3, the reference point (P) considered in the evaluation of insolation on March 21 is defined as the center of the window width (w), on the interior wall, at a height of at least 1.20 m above the floor and 0.30 m above the parapet height, if any.

2.4. Protection against glare

Highly illuminated surfaces in the visual field cause glare to the human eye. Direct sunlight entering the space through a window can cause glare. Daylight glare is assessed by the 'daylight glare probability (DGP, daylight glare probability)'. Daylight glare probability (DGP) is an approach to assessing the proportion of people who are uncomfortable, taking into account the level of vertical illuminance at eye level and the high illuminance sources that cause glare. The recommended daylight glare probability thresholds (DGP) for three levels of glare protection: minimum, medium and high are given in Table 3. The time during the year that the predominantly occupied area of a space is used is defined as the reference occupancy period. This period is assumed to be 8:00-18:00 hours five working days a week throughout the year. Daylight glare probability thresholds are allowed to be exceeded for a maximum of 5% of the reference period. If the thresholds are exceeded, measures such as sunbreakers, blinds, etc. can be taken as solar control systems in windows (Yağmur & Ünver, 2015, pp 16-19).

Table 3. Recommended grades for sunshine duration (TS-EN 17037).

Degree of protection from glare	DGPt	Maximum permissible exceedance rate during the period of use
Minimal protection. Glare is perceptible and often uncomfortable	≤ 0.45	%5
Moderate protection. Glare is perceptible but mostly not annoying	≤ 0.40	%5
High level of protection. Glare is mostly imperceptible.	≤ 0.35	%5

For example, glare can be caused by reflected light from a computer screen, overhead lights, bright light sources such as light bulbs or bright windows, or even the reflection of a magazine with a glossy page (Edward, 2005, pp.11-12).

Torches, kindling, gas lamps and lanterns, which are used as a guide in places where natural lighting is not sufficient and more light is needed, have been replaced by electric lighting devices today (Dalkılıç & Halifeoğlu, 2003, pp. 3-4). With the invention and development of electrically powered lighting elements, a field of study has been formed and today lighting has become a branch that requires specialization. Correct and good lighting is very important for the success of a library in general and in its use. For this reason, especially in the design phase of library buildings, lighting should be handled by experts. However, the elements that make up the functional lighting design in libraries:

- Structural Features
- In-Building Lighting
- Visual Comfort
- Energy Efficiency
- Flexibility and Control

It is not only the provision of the appropriate light energy required, but also the direction of light to the eye, the brightness of the objects surrounding the visual field and the task object, and the light diffusing properties of the task object. According to the 'Light and Lighting' regulation of the Turkish Standards Institute published in 2013 (TS EN 12464-1: 2013), it is stated that the criteria for electric lighting may depend on the illuminance level (E; lm / m², lx), Luminance and Glare (R_{UGL}), Uniform spread of the illuminance level (U_o), the color of the illuminating light (color rendering index-R_a, color temperature-K) and the directional structure of light and shadow properties.

3. Possible Effects of the Use of Cantilever Mass in Architecture on Lighting

It is a natural process of planning to consider the effects of the façade fiction along with the planning of the architectural project. With some technical and mechanical limitations in planning, cantilever masses are frequently used in architecture to bring mobility to the façade fiction, to provide different dimensions in the floor area and shading. Some of the possible effects of cantilevered masses, which can have negative effects on the illumination of the space in some cases when designed with only architectural design in mind, are evaluated under the following subheadings.

Shadow Creation: A cantilever mass is a part of the building that projects outward from the building façade. When criteria such as direction, distance, etc. are not taken into consideration, the masses protruding from this structure can create a shadow effect at certain times of the day and prevent the passage of light to the interior spaces. This is important in terms of providing homogeneous illumination in the interior spaces and maintaining a stable light distribution throughout the day. Especially in tall buildings, if the cantilevers are not designed appropriately, they may adversely affect neighboring buildings or the environment. Shading is a factor to be considered in relation to environmental regulations and the placement of neighboring buildings.

Lighting Imbalance within the Space: Cantilever mass can cause lighting imbalances within the building. If natural light is focused or falls only in certain areas, it can create dim and dark areas in other areas. This can lead to visual comfort issues for indoor users and reduced work performance.

Energy Efficiency: The direction in which the cantilever masses are positioned in the building is very important. In terms of both direction and size, it can have positive or negative effects on the main mass when it is designed considering the effects it can create in the interior spaces. This may indirectly increase or decrease the amount of energy consumed in lighting and/or heating-cooling loads.

Aesthetic Effects: Cantilever masses may not look good architecturally when they are designed only to create extra space and not as an impressive or complementary element of the design. Especially if they are not carefully considered in terms of design and aesthetics, if they are not designed to show the limits of the structure or load-bearing elements, cantilever masses can have a negative effect on the building and can create a very rigid form.

In summary, it is important to be meticulous in the design and positioning of cantilever masses, taking into account the natural lighting factor. With proper design and planning, the aforementioned negative effects can be minimized or eliminated.

4. Examination of Merkezefendi Library as a Case

In the study, the Central Library of Central Municipality of Merkezefendi Municipality in Denizli was selected as a sample building to examine the effect of cantilever masses on the natural light levels in the interior. The reason for choosing this building is the presence of cantilever masses in different directions and lengths, and the realization of the act of reading, where the level of illumination directly affects the performance due to its function. A detailed description of the building is given below.

4.1. Location and History of the Building

Merkezefendi Library is located in Denizli province, Merkezefendi district, Adalet neighborhood, 10127 street. The building designed as a library building was built between 2016-2019 and is actively used today. The location of the library building and its relationship with its surroundings are given in Figure 4a, and the general view of the building is given in Figure 4b.

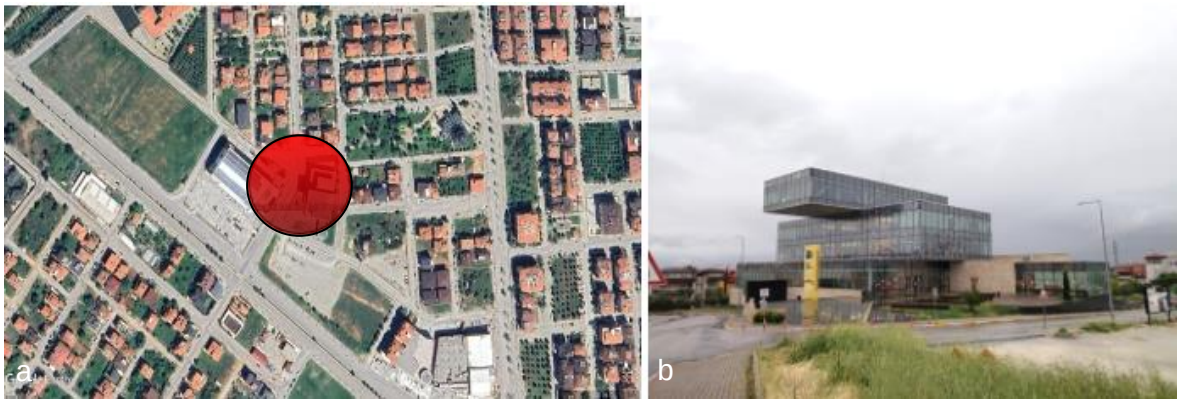

Figure 4. a. Location of the library (Google Earth, 2024); b. General view of the library (Çetin, 2024).

Accordingly, it can be said that the building is spread over a large area, is not in close proximity to the surrounding buildings, and is not close to a building at a height that would prevent it from receiving daylight. This situation is important in the evaluation of the criteria in the analysis.

4.2. Architectural Features of the Building

Located on an area of 4880 m², Merkezefendi Public Library includes spaces for different age groups. In addition to the preschool section, individual and group study rooms, classrooms and reading rooms, the library has special areas for the disabled (Figure 5), (Morf, 2024).

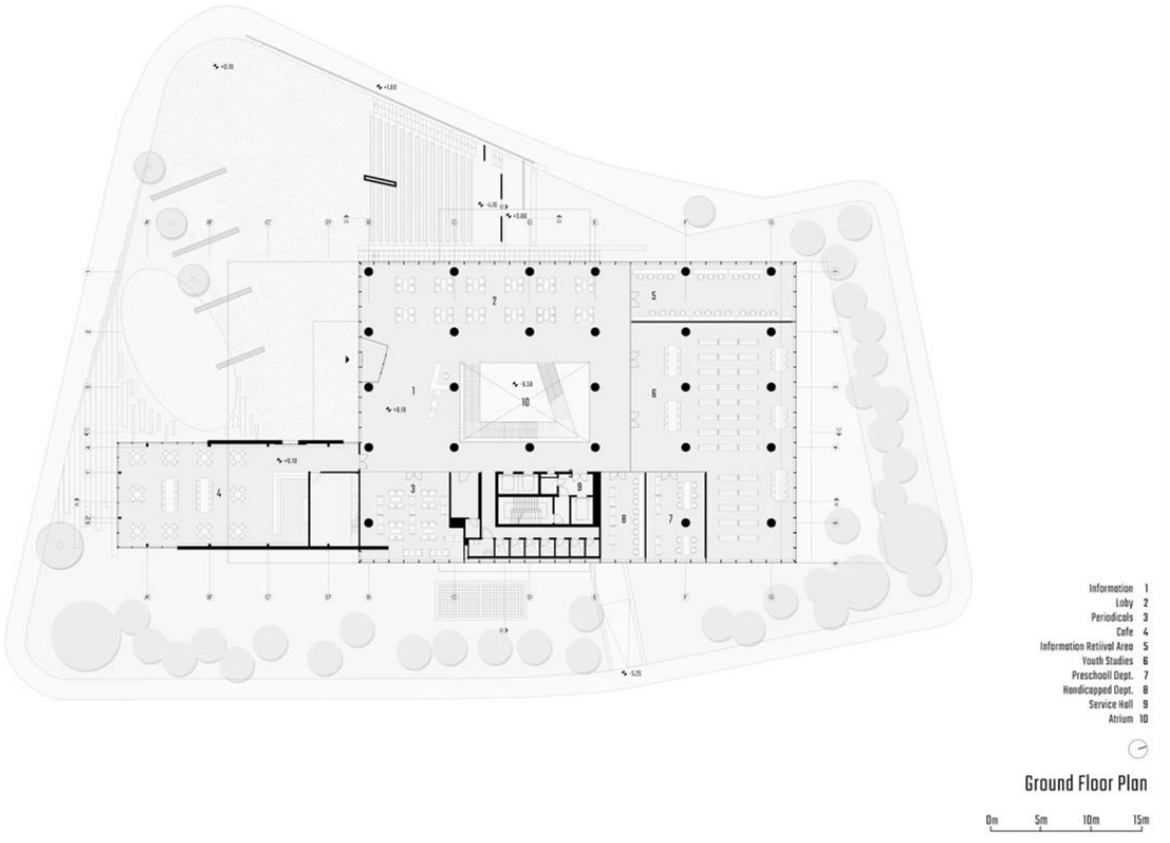

Figure 5. Merkezefendi Library Ground Floor Plan (Çetin, 2024).

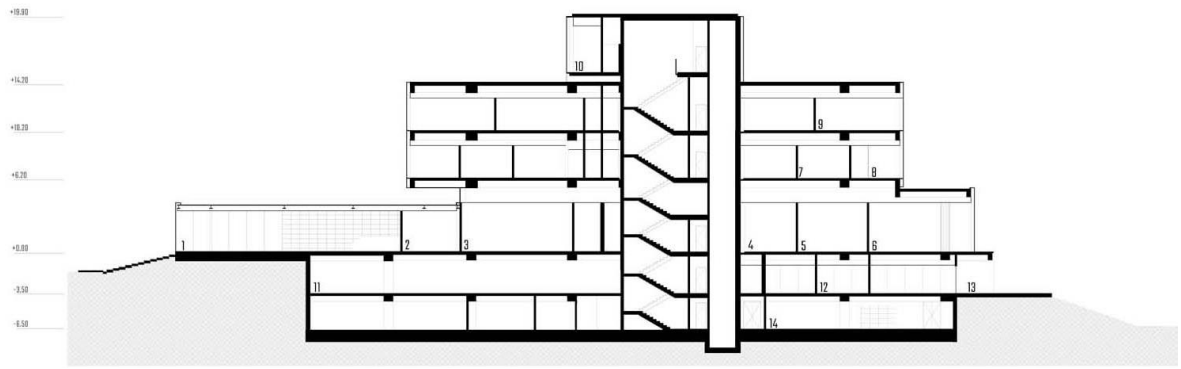

Figure 6. Merkezefendi Library Schematic Section (Arkiv, 2024).

In the design report of the building, it is stated that the design decisions taken were shaped in a hierarchical order, paying attention to the separation of sound and silent spaces. It can be said that the ground and lower level areas are reserved for more lively and intense activities, while the upper level areas are designed for quieter functions (Figure 6, 7).

Figure 7. Gallery Space in the mass (Çetin, 2024).

It is also stated in the design decisions that the concept of the library reflects the "Accumulation of Knowledge", that each floor in the mass represents new knowledge learned, and that this mass overlaps and the west-facing cantilever at the top level of the building is emphasized as the main design element and is intended to contribute to the building to be a city symbol. It is stated that the building was created using completely transparent facades in order to prevent shadow formation in the interior space and that the cantilever mass extending east of the entrance facade determines the lecture hall in the open space. In the design report, it is seen that the cantilever mass is preferred not only aesthetically but also functionally. In order to prevent this situation from turning into a disadvantage in terms of lighting, it is seen that a measure has been taken by using completely transparent facades.

However, it is necessary to investigate whether this measure is sufficient and whether it is not only in terms of illumination but also in terms of heating and shading in summer. In this study, simulations and analyzes were made only in terms of the effect of the cantilever mass on lighting.

4.3. Natural Lighting Simulation of the Building

The criteria that form the basis of the lighting criteria of the cantilever mass in the building and will be analyzed are determined as cantilever distance, cantilever direction and building (cladding) material. In addition, the simulations were run in both clear sky and cloudy sky conditions. After the modeling phase of the building was completed, in line with the data obtained through literature research and on-site observation, the peak usage hours and required illuminance values for the library reading area were entered into the Dialux program and natural lighting analysis was performed. The data entered into the program is given in Table 4.

Table 4. Planning Data Entered into Dialux Program (Çetin, 2024).

Planning Data	
Usage	Library
Measurement Time	16:00-17:00
Measurement Season	Summer (in July)

According to the on-site observations made in the library; Merkezefendi Library is intensively used from 10:00 in the morning until 22:00 in the evening. Although it changes periodically, ambient lighting supported by electric lighting is used at 20:00 in summer and 16:00 in winter.

But all the natural lighting measurements have been done in July at summer season, between 16:00-17:00 hours, which is the rush hour of the library. All the calculations that was done in the case is gotten from this simple simulation. Although the cloudy 17037 standard suggests that the most accurate data can be obtained by measurements to be made throughout the year, the data obtained in this study were obtained at a certain time and hour of the year. Since the aim of this study is to measure the effect of the cantilever on the level of illumination it creates on the mass it is on, it has been assumed that the rate of the cantilever effect affecting the level of illumination will be similar in the data to be obtained throughout the year. However, studies can be conducted to observe the changes that may occur in different months.

The meteorological data of Denizli for cloudy and clear sky conditions are given below (Table 5).

Table 5. Monthly Average Cloudy and Clear days at Denizli (General Directorate of Meteorology).

Months	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual Average
Average Cloudy Days	20	19	20,2	20,4	18,2	11	5,5	5	7,3	13,9	17,2	20,4	178,1
Average Clear Days	8,3	7	8,2	8,3	12,1	18,9	25,8	26,2	22,7	16,3	11,6	8	173,4

As seen in Table 5, the annual average number of clear days and cloudy days in the region is approximately equal to each other. For this reason, the data on the level of illuminance in the study are considered within the scope of clear and cloudy sky conditions. The sun is included in the calculations under clear and cloudy sky conditions.

4.3.1. Current Situation

In the study, firstly, the current illuminance level of the building was analyzed. The solid model of the building was created with the Dialux program and lighting simulation was performed. The general view of the library is given in Figure 8.

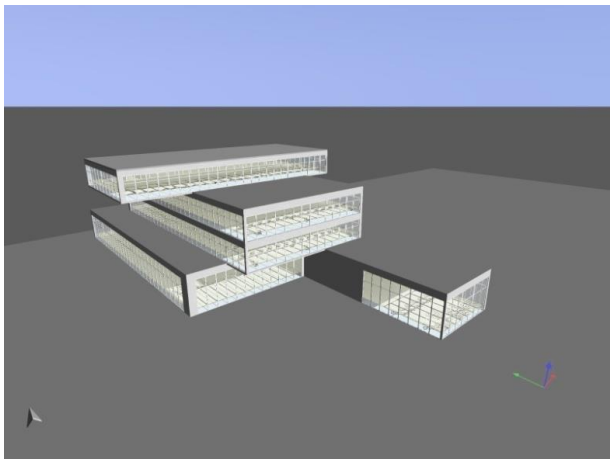

Figure 8. General View of the Library Building (Çetin, 2024).

The existing façade system and glazing design, cantilever spacing, building material and cantilever orientation of the library were modeled with the Dialux program after on-site inspections. The data used in the model is given in Table 6.

Table 6. Existing Building Information Entered into Dialux Program (Çetin, 2024).

Current Building Data	
Cantilever Direction	East
Cantilever Material	Wood
Cantilever Length	10 meters

After the modeling phase of the building was completed, the hours of use and the required lux values for the library reading area were entered into the Dialux program in line with the data obtained from the literature review and natural lighting analysis was performed. The data entered into the program are given in Table 6. However, among the criteria determined to analyze the effect of the cantilever mass on the level of illumination in the interior space;

Direction variable; to measure the effect of which facade the cantilever mass is located on the level of illumination in the interior space,

Distance variable; to measure the effect of the cantilever length of the cantilever mass on the illumination in the interior space,

The building cladding material variable was determined to measure the effect of the reflectivity level of the material covering the base of the cantilever mass on the illumination in the interior space.

All these variables were considered under both clear sky and cloudy sky conditions. When the data are analyzed in Dialux program with these variables in the current situation; the numerical results regarding the daylight usage in the reading area in the false colors representation of the reading room located on the lower floor of the cantilever mass given in Figure 12 are expected to be 500 lx on average and above, which is the reference value determined in the working plane in the reading area, while the data obtained as a result of the simulation show that this value is 444 lx on average in the current situation in the cloudy sky. However, as seen in the false color representation, it can be said that the overly bright areas at the window edges increase this average value, while the middle areas, where most of the use takes place, are around 200 lux on average. In this case, it is seen that daylight is insufficient in the reading area. In particular, it can be clearly seen that the illuminance levels at the location of the cantilever mass (at the center top point of the plan) are very low (130-230 lx) unlike the other facades (Figure 9).

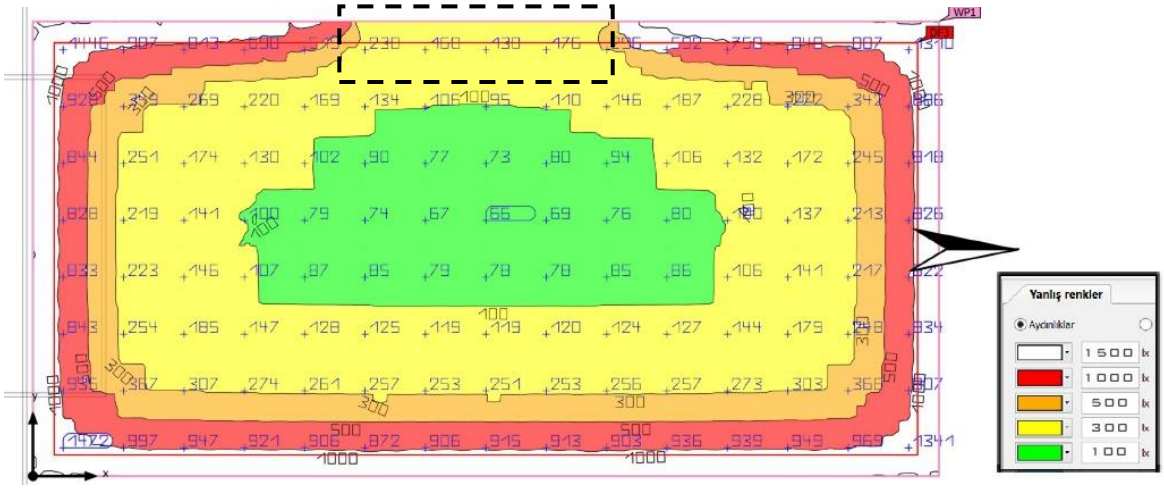

Figure 9. False Colors Representation of the Reading Room on the Lower Floor of the Cantilever Mass in the Existing Condition (Çetin, 2024).

In the scenarios to be analyzed in the study, each criterion to be measured is considered as a variable and calculations are made by keeping the other criteria constant. In the first case, the cantilever distance and cladding material were kept constant and the direction variable was analyzed. When the existing cantilever distance (10 m) and cantilever material (wood material) are kept constant and the cantilever direction variable is analyzed, the illumination level in the interior space with the cantilever mass in the east direction (the current direction) is 444 lx on average, 488 lx on average if it is designed in the west direction, 458 lx on average if it is designed in the north direction and 503 lx on average if it is designed in the south direction, and the target illumination level can be met only when it is designed in the south direction.

In case 2, the cantilever distance and cantilever direction were kept constant and the cantilever material variable was analyzed. When the existing cantilever distance (10 m) and cantilever direction (east) were kept constant and the material variable was analyzed, while the illuminance value was 444 lx on average with the existing building cladding material (wood), the illuminance level increased to 488 lx on average when it was proposed to be covered with aluminum, a material with a high reflectivity value, but did not meet the target lighting level.

In case 3, in order to analyze the effect of the distance variable, analyses were carried out with no cantilever overhang (0 m) and with the cantilever overhang half of the existing condition (5 m). Since these analyzes are analyzed in detail, they are discussed under 2 separate headings below.

4.3.2. Proposal Case Without Cantilever

In the current situation, when the cantilever mass distance is 10 m, the illuminance level in the interior is 444 lx on average. The data used in the natural lighting analysis of the building without cantilever mass is given in Table 7.

Table 7. Building Information Entered into the Dialux Program in the Absence of Cantilever Projection (Çetin, 2024).

Absence of Cantilever	
Cantilever Direction	East
Cantilever Material	Wood
Cantilever Length	None

Accordingly, other variables were kept constant and only the cantilever mass was removed. In this case, an illumination of 512 lx on average was obtained in the interior (Figure 10). Again, in the absence of the cantilever mass, the illumination levels from the other facades were 556 lx on average in the west direction, 526 lx on average in the north direction, and 571 lx on average in the south direction, and it was seen that the target illumination level was met in all directions. However, when the situation without the cantilever mass and the direction of the cantilever (east) is kept constant and the material variable is analyzed, replacing the building cladding material with aluminum, a material with a high reflectivity value, increased the illumination level to 562 lx on average and met the target illumination level.

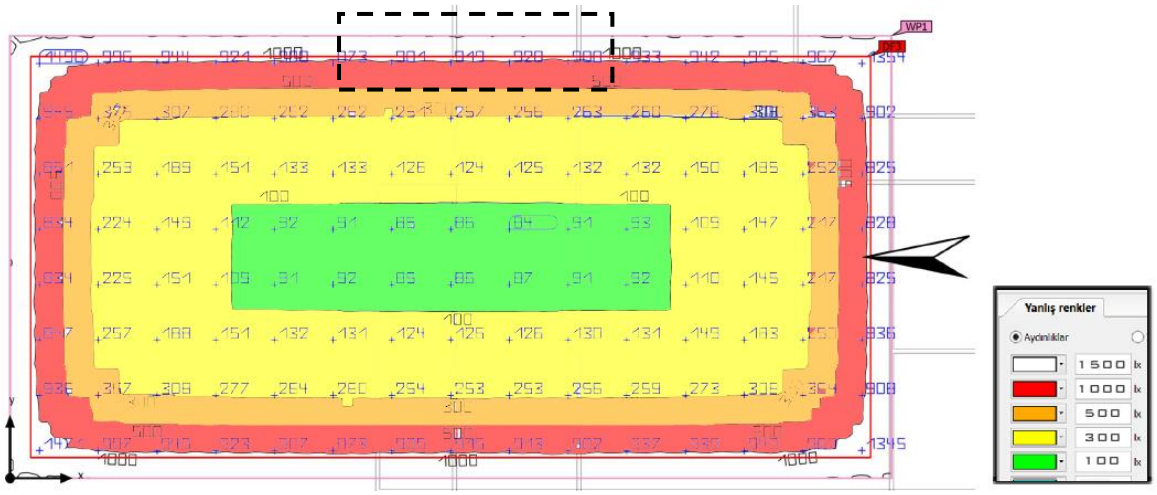

Figure 10. False Colors Representation of the Current Situation (Çetin, 2024).

As seen in Figure 10, in the section where the cantilever mass is located, the illuminance levels in the absence of the cantilever have reached approximately 1000 lx levels as in the other facades. This has led to an increase in the average illuminance level. However, it is seen that natural light shows a homogeneous and regular distribution in the interior areas.

4.3.3. Proposal Case with 5 Meters of Cantilever

The cantilever mass distance of the building was re-modeled as 5 meters and natural lighting analysis was performed. The data entered into the program are given in Table 8.

Table 8. 5 Meters Cantilever Building Information Entered into Dialux Program (Çetin, 2024).

Absence of Cantilever	
Cantilever Direction	East
Cantilever Material	Wood
Cantilever Length	5 meters

The results of the analysis (Table 8) when the cloudy sky is evaluated; Accordingly, when the cantilever distance is 5 m and all other criteria are the same as the existing situation (cantilever in the east direction and covered with wooden material), the illuminance level in the interior space is obtained as 458 lx on average (Figure 11). In this case, it cannot be said that there is a significant increase in the illuminance level compared to the case where the cantilever is 10 m. However, when the cantilever distance was kept constant at 5 m and the direction variable was analyzed, the illuminance values of 502 lx on average were obtained when the cantilever was in the west direction, 472 lx on average in the north direction and 517 lx on average in the south direction, and in this case, the west and south directions met the target illuminance level. When the console distance of 5 meters and the console direction (east) were kept constant and the material variable was analyzed, replacing the building cladding material with aluminum, which has a high reflectivity value, increased the illuminance level from 458 lx to 503 lx and meets the target illumination level.

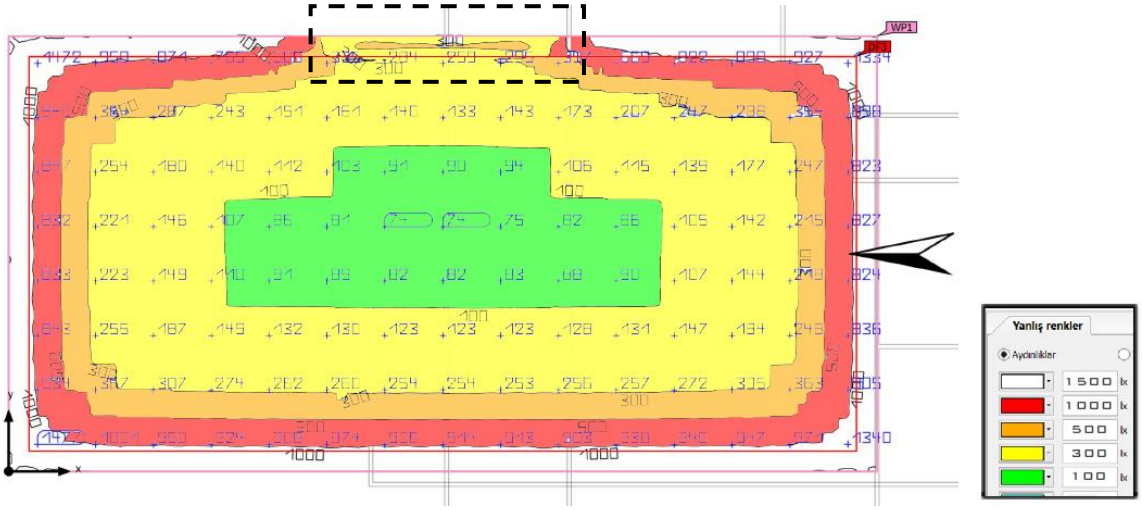

Figure 11. False Colors Representation of the Current Situation (Çetin, 2024).

As seen in Figure 12, it is seen that the illuminance level decreases again when the cantilever mass is proposed as 5 m, but the values obtained are approximately 100-120 lux more than the situation where the cantilever is 10 m. This shows that the cantilever length is inversely proportional to the illuminance value and that the length of the cantilever is an important factor in indoor illumination.

5. Findings and Evaluation

The results of the analyzes performed in the study are given in a single table in Table 9. In the current situation, it was observed that the cantilever mass does not meet the lighting level at the targeted level. However, when the cantilever distance is reduced to 5 meters or when there is no cantilever mass, it is observed that the lighting level meets the target level. This shows that the effect of the cantilever mass on natural lighting may vary depending on factors such as cantilever distance and building material.

Table 9. Reading area daylight utilization analysis results (Çetin, 2023).

CANTILEVER		CLOUDY SKY			CLEAR SKY		
DIRECTION	MATERIAL	LENGTH			LENGHT		
		0 m	5 m	10 m	0 m	5 m	10 m
EAST	Wood	512 lx on average	458 lx on average	444 lx on average	2582 lx on average	2524 lx on average	2506 lx on average
	Alunımıum	562 lx on average	503 lx on average	488 lx on average	2810 lx on average	2745 lx on average	2726 lx on average
WEST	Wood	556 lx on average	502 lx on average	488 lx on average	2806 lx on average	2744 lx on average	2726 lx on average
	Alunımıum	606 lx on average	547 lx on average	532 lx on average	2988 lx on average	2937 lx on average	2906 lx on average
NORTH	Wood	526 lx on average	472 lx on average	458 lx on average	2604 lx on average	2552 lx on average	2524 lx on average
	Alunımıum	576 lx on average	517 lx on average	502 lx on average	2790 lx on average	2758 lx on average	2728 lx on average
SOUTH	Wood	571 lx on average	517 lx on average	503 lx on average	2810 lx on average	2775 lx on average	2745 lx on average
	Alunımıum	616 lx on average	562 lx on average	547 lx on average	2980 lx on average	2945 lx on average	2916 lx on average

The results of all cases and scenarios given in Table 9 are given considering both cloudy and open skies. According to Figure 12 and Figure 13, it is seen that the best illumination level in the interior space is obtained when the cantilever mass is on the south facade and the cantilever mass is covered with aluminum material. On the other hand, the lowest level of illumination is obtained when the cantilever mass is on the east façade, 10 meters long and covered with wood. In other words, an increase of approximately 100 lx in the level of indoor natural illumination is observed when only the direction of the cantilever mass and the material it is covered with are changed without changing the length distance of the cantilever mass. Contrary to popular belief, the length of the cantilever mass does not cause a significant change in the natural illumination of the interior space, while the direction and cladding material can significantly affect the illuminance level.

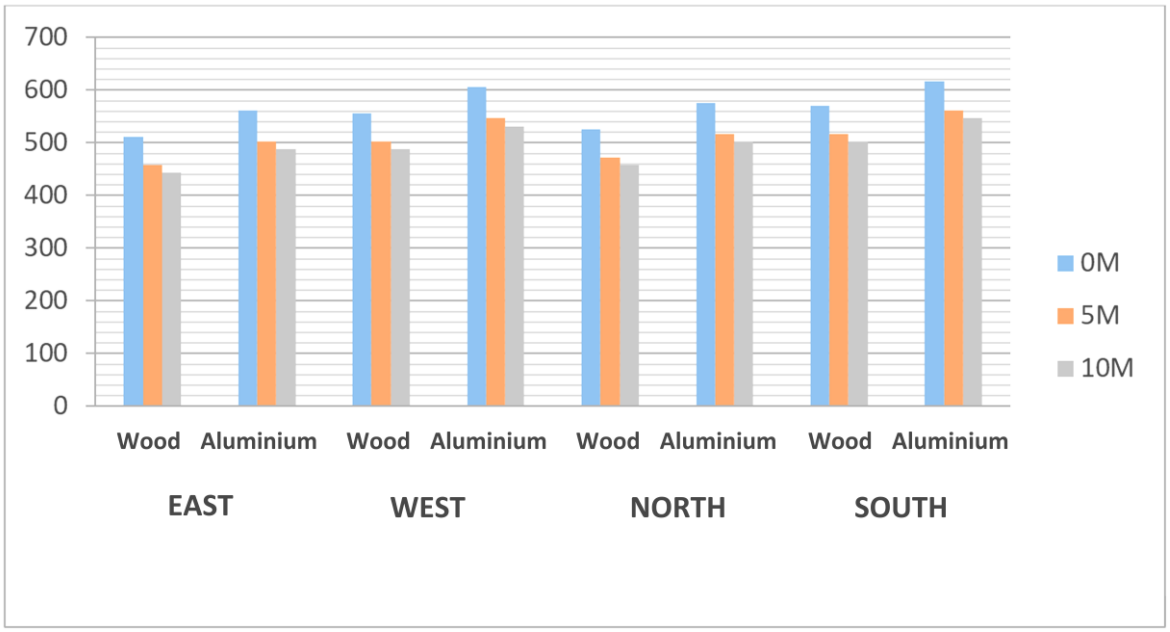

Figure 12. Cloudy Sky reading area daylight utilization analysis results (Çetin, 2024).

However, as can be seen in the false colors representation, it can be said that the over-illuminated regions at the edges of the windows increase this average value, the middle regions, where most of the use takes place, are currently around 200 lux on average, and this value can go up to around 250 lux at most in recommended cases. Therefore, it can be interpreted that the majority of the area that is actually in use is not actually illuminated as much as these average values given in the program under cloudy sky conditions.

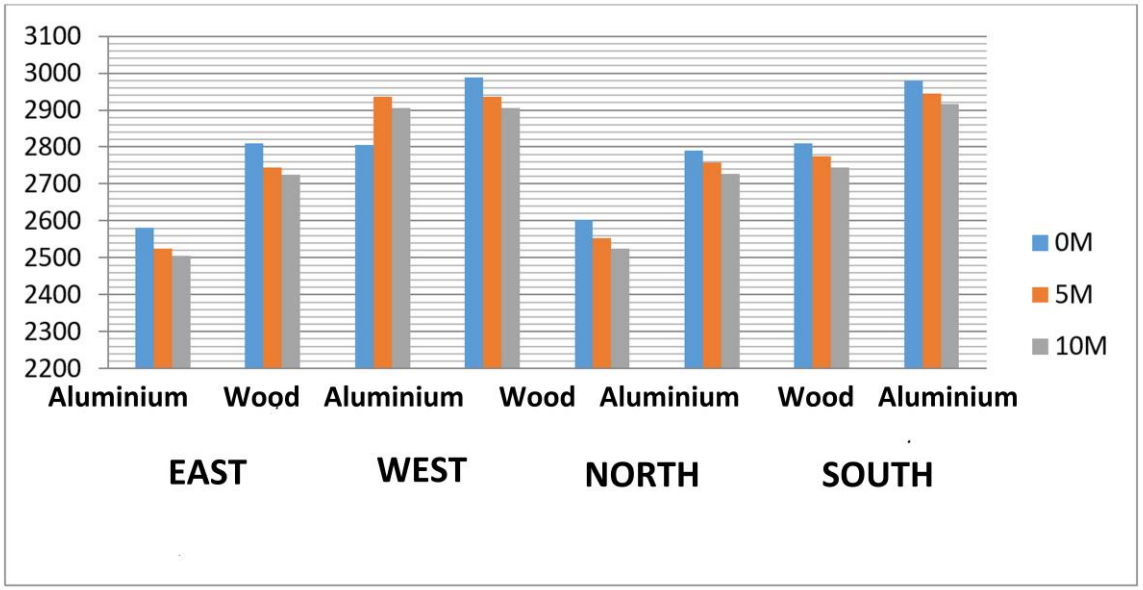

Figure 13. Clear sky reading area daylight utilization analysis results (Çetin, 2024).

However, when the clear sky conditions are analyzed, although the difference between the illuminance levels of the scenarios considered is at a similar level, values well above the target illuminance level are obtained in terms of quantity. Considering the climatic conditions of the

region, especially in the summer months, it is thought that the sun's rays come more steeply and excessive glare and glare may be in question, especially in locations close to the facade.

6. Conclusion

As a result of the analyses carried out in the study, the effect of the cantilever mass on natural lighting in the building was examined and different scenarios were modeled and comparative analysis method was used. As discussed in the findings section; when the cantilever mass is designed in the west and south directions in the best case, regardless of the length and material of the cantilever, it does not significantly affect the level of natural light in the space underneath, while when it is designed in the north and east directions, the opposite is true. However, regardless of the direction and length in which the console is designed, the level of natural light in the interior increases when the material of the console is aluminum. According to the results of the analysis, the effect of the cantilever mass, which also has various design-related functions in the building, on natural lighting is variable according to different conditions, but different situations and scenarios were analyzed in order to reveal its concrete effects as much as possible. The correct positioning and sizing of the cantilever mass is very important in terms of providing homogeneous lighting in interior spaces and maintaining a continuous light distribution throughout the day. However, none of these criteria alone produces extraordinary effects.

Before the study, it was thought that the effect of the building, which appears as a very solid and full mass at first glance, and the cantilever mass designed at the upper level on the level of illumination would be of primary importance, but with the scenarios created in the study, it was seen that the fact that the cantilever mass has different lengths, materials and is designed in different directions with the current situation has improving effects on the level of illumination, but it is not a factor that will affect it primarily. In addition, studies in which the length and width of the cantilever mass can be evaluated and the optimal option can be found will be included in future studies.

All of the analyses were performed considering both cloudy and clear skies, showing that daily weather conditions significantly affect the illumination of the interior space, independent of the cantilever mass. Basically, the analyses performed by taking into account the results of cloudy skies try to achieve the minimum limits of the target illuminance level specified for the reading function in library buildings, while the analysis performed in the case of clear skies shows that the illuminance level in the interior is almost at the level of excessive glare. Just as insufficient natural lighting has a negative impact on the efficiency of the function envisaged in the space, uncontrolled excessive daylight illumination similarly reduces the efficiency of the function. In addition, the design of facades that are completely transparent in all directions leads to overheating of the interior, especially in summer, and the need for significant energy consumption for cooling the space. In this case, the areas close to transparent windows, where natural lighting can be utilized to the maximum extent, are not preferred due to both the glare effect and the excessive temperature effect.

The values obtained in the study were made by taking the minimum illumination level values specified in the TS-EN 17037 standard as reference, and the inferences were taken into

consideration accordingly. However, considering the external view information recommended in terms of natural lighting specified in the standard, the sky, landscape and other layers can be seen from 75% of the interior volume, considering the completely transparent external structure of the building. However, due to the physical location of the building, it is far from external obstacles at the average measurement distance specified in the standard. When viewed from this perspective, it can be said that other physical factors that will prevent the natural lighting of the building and the external view from inside the building are at a minimum level.

Therefore, it is known that the transparent facades, which are stated in the design report of the building to be completely transparent in order to reduce the effect of the cantilever mass on the level of illumination in the interior, on the other hand, have negative effects on the interior space in terms of uncontrolled daylight intake and thermal performances. In this case, it is one of the important results obtained from this study to find solutions for these concerns only on the facades where the cantilever mass is located and to find balancing solutions by taking into account the visual and thermal comfort issues on the other facades.

The effect of the cantilever mass on natural lighting is an important issue to be considered in building design. In this study, the negative effect of the cantilever mass on the lighting performance can be reduced and a homogeneous lighting can be provided in the interior spaces with the right directional planning and material use. This study emphasizes the importance of visual comfort and lighting in architectural design and draws attention to the importance of lighting design of library buildings.

Declaration of Ethical Standards

The article complies with national and international research and publication ethics.

Ethics Committee Approval was not required for the study.

Conflict of Interest

There was no conflict of interest between the authors during the research process.

Authors' Contributions

All authors contributed equally to the article.

Declarations

The authors take full responsibility for the content and any modifications made during this process.

Originality Report

According to the originality report obtained from the iThenticate software, this article's similarity rate is 7%.

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Research Article

Quasi-Objects of Art-Architecture in Exhibit: Revisiting Mulino Stucky Project as a Transversal Exhibition in the Venice Biennale of 1975

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Keywords

Art-Architecture Coupling, Exhibition Practices, Quasi-Objects, Venice Biennale 1975, Performative Spatiality.

Abstract In the late 1960s and 70s, architects and artists increasingly blurred disciplinary boundaries, with architects exploring installation as a form of spatial production and artists adopting architectonic forms. This paper investigates how these practices, described as “making (for) the exhibition,” redefined disciplinary hierarchies and fostered the repetitive recontextualization of spatial works in large-scale art and architecture exhibitions. By focusing on the “art-architecture coupling,” the study seeks to answer how such practices transcend traditional disciplinary boundaries and transform exhibitions into dynamic social spaces.

Employing a transdisciplinary methodological framework developed by using Peter Osborne and Eric Alliez’s concepts of “transdisciplinary” and “transcategorial” practices, alongside Michel Serres and Bruno Latour’s notion of the “quasi-object,” the research examines the performative and relational dimensions of exhibitions. Through archival research, visual document analysis, and a historiographic approach, the Venice Biennale’s 1975 Mulino Stucky exhibition is revisited as a case study, marking a key moment in the Biennale’s evolution from academic art to socially-oriented practices that integrate visual arts and architecture.

The findings reveal how quasi-objects within the exhibition reconfigured material and social relations, challenging conventional work/viewer divisions and granting agency to objects and subjects alike. This reassessment highlights the transformative potential of quasi-objects in redefining the interplay between art and architecture, ultimately reframing exhibitions as sites of social and spatial reimagination.

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1. Introduction

The clear resemblance between art and architecture exhibitions is a hallmark of our time. Architects are increasingly turning to artistic research, adopting techniques and categories from the art world, while artists, in turn, create architectural installations or fragments that question the spatial and social conditions of particular spaces, landscapes, or buildings. Historically, exhibition as a phenomenon was central to art but held only secondary importance for architecture, primarily contributing to the discourse on modern architecture. Today, however, architecture itself has transformed into an object of interest, exemplifying a practice of “making (for) exhibitions.” The distinction between architecture and the arts has blurred, with exhibitions becoming a shared platform for both disciplines. This shift redefines their dynamic from “art and architecture” to “art-architecture”, a form of practice that transcends conventional disciplinary boundaries.

This study investigates "art-architecture" as a mode of integration that challenges traditional frameworks of architectural practice. By revisiting transformative moments in the Venice Biennale's history - specifically, its radical restructuring following the cultural and political upheaval of 1968 - the research situates the Biennale as a pioneering platform for fostering transdisciplinary and transcategorial exchanges. This period marked a pivotal shift from an elitist, rigid institution to an inclusive, democratic arena that embraced diverse fields, including architecture.

Using the lens of transdisciplinary ontologies of mediation (Alliez & Osborne, 2008), this study frames exhibitions as active processes that create spaces for the production, rather than the mere consumption, of art and architecture (Blau, 2010). Central to this approach is Michel Serres’ concept of the "quasi-object" (1982; 2007), later expanded by Bruno Latour (1993), which is applied to examine how exhibitions function as transversal practices bridging disciplines and categories. These quasi-objects acquire meaning through their relational context, disrupting conventional binaries such as object/subject and work/viewer, and acting as mediators within the exhibition assemblage.

The Venice Biennale serves as a key site for investigating these dynamics, with its long history as a pioneering institution and global platform for art and architecture. Despite its distinct Art and Architecture Biennales, the event occupies a transdisciplinary position that facilitates exchanges and intersections between the two fields. A pivotal example is the Mulino Stucky (Stucky Mill) project, curated by Vittorio Gregotti during the 1970s, a period when the Biennale shifted towards inclusivity and interdisciplinary dialogue. This project-exhibition, involving in-situ works by artists and architects, is revisited here through archival research and photographic narratives to uncover the performative processes that characterized its quasi-objects of art-architecture.

Through archival research and photographic narratives, this study reexamines the performative processes and quasi-objects that characterized the exhibition, uncovering their role in reshaping the Biennale's socio-spatial and disciplinary dimensions. The archival research focused on documentary photographs capturing the installation processes and the performative aspects of the works during the exhibition, rather than the photographs of finalized works commonly found in published exhibition catalogues. These photographs were

selected for their ability to reveal the dynamic and processual nature of the exhibition, offering insights that static images in catalogues cannot provide.

The selection process involved identifying images that documented the relational interplay among objects, spatial arrangements, and participant interactions, prioritizing visual evidence that showcased the evolving character of the exhibition space. The analysis of these visual documents was guided by a framework grounded in Michel Serres' concept of quasi-objects, focusing on their agency and how they mediated the exhibition's social and spatial dynamics. The photographs were coded and analysed to trace patterns of interaction and spatial transformation, interpreting them as key indicators of the exhibition's performative processes. This methodological approach enabled the study to establish a nuanced understanding of the Mulino Stucky exhibition's transdisciplinary character and its contribution to redefining the Venice Biennale's disciplinary boundaries.

By tracing these transformations, the research contributes to a deeper understanding of exhibitions as models for relational social spheres. The coupling of visual arts and architecture within evolving exhibition structures and formats highlights fertile terrain for transdisciplinary approaches, challenging traditional boundaries and reimagining the roles of both practitioners and audiences. This study addresses the following research question: How do exhibitions, as processual and performative spaces, redefine the interplay between art and architecture through the concept of quasi-objects? By examining the Mulino Stucky project, the paper reveals how quasi-objects functioned as mediators within the exhibition, reshaping its spatial and social dynamics while challenging disciplinary boundaries.

2. An-other Practice: Transversal Exhibition Cross-cutting Disciplines and their Categories

The blurring of disciplinary boundaries is not a straightforward process but rather a result of an evolving consensus on the ethical and aesthetic principles shared by both art and architecture (Polyak, 2013). The transformation of architecture into an object of interest - as a practical form of "making exhibitions" and "making for exhibitions" - can be considered a relatively recent phenomenon. In this context, it can be argued that art "and" architecture have evolved into art "-" architecture (Foster, 2011), with exhibitions becoming a common form of practice for both fields. The expression "art-architecture" reflects a coupling of the two disciplines, calling for a redefinition of both the practice and the practitioner beyond conventional disciplinary boundaries and categories.

In discussing contemporary architecture, architectural historian, critic, and curator Sylvia Lavin (2003) argues that architecture should be understood as requiring an "exhibition mode" rooted in curatorial practice, drawing on its modernist exhibitionary precedents. Lavin describes curatorial practice as a frequently overlooked aspect of architecture, as it emphasizes architecture as a spectacle - a dimension that many architects regard as the "other" practice. According to the author, "contemporary practice" has brought this curatorial dimension of architecture to the forefront, making the "curator" visible not only as a person or subject but as a function and practice (Lavin, 2003). Similarly, in this paper, the term "making (for) exhibition"

is used to encompass curatorial practice, describing the dual role of the artist or architect as both the creator of the exhibited work and the curator of the exhibition.

The spatial equivalent of this practice - the "other" space produced through the “exhibition mode” - is not representative but processual in character. Its performative nature constructs experience as a form of making. Architecture can thus be exhibited not only through conventional representational objects but also through spatial agency, as is seen in art exhibitions, using processual objects. In other words, this “other practice” represents a form of making that does not convey meaning from an external object but generates meaning autonomously, through subject-object relationships, thereby transcending traditional disciplinary definitions and categories. This practice challenges the centralizing tendencies of representational exhibition formats, which typically foreground the creator-subject or author. Instead, it introduces a decentralized, processual exhibition format - a “project” involving various actors who “perform.”

Philosopher Peter Osborne (2016) addresses contemporary artworks, which he defines as post-conceptual, through the concept of the transcategory. Philosopher Eric Alliez (2017) similarly argues that the pragmatics of an operative mode of thinking are both transdisciplinary and transcategorial (Alliez, 2017). In other words, when different forms from distinct realms - such as art and architecture - are heterogeneously assembled and transformed into objects of thought, the fictional nature of this act creates an assemblage that surpasses the original categories of these realms. (Alliez draws here on Deleuze and Guattari’s concept of “flat ground” from *A Thousand Plateaus*).

The transcategory, as Osborne describes it, offers a way to view contemporary art that reflects a plurality of spatializations and multiple materializations of a work. This approach allows for the production of diverse and limitless ontologies, unbinding the work from any specific medium or category. Osborne emphasizes the role of fictionality as a significant force that moves the work beyond conventional categories, where the artist (or architect) is traditionally seen as the author, and documentation practices are assumed to be objective (Osborne, 2016).

Aligned with Osborne’s transcategory, a work cannot simply be defined by its immediate physical context. For example, an art installation within a particular architectural setting represents one instance of the idea; however, the repositioning of this installation in a different architectural context signifies its plural re-spatialization. Similarly, when the work becomes part of other assemblages across spatio-temporalities through photography, it undergoes multiple materializations. In this sense, when considering a work with a transcategorial character, its specific medium or category is but a “moment.” Each medium (whether actual or digital) in which the work is re-materialized embodies one of its multiple presences.

3. An-other Concept: Spatial Agency of the Quasi-Objects of Art-Architecture

Quasi-objects can be defined as transdisciplinary and transcategorial elements within the “art-architecture coupling” framework. When exhibitions are reconsidered as dialogic phenomena facilitating exchanges between art and architecture, quasi-objects are argued to play an active

role in establishing interdisciplinary dialogue through their inherent presence within exhibition environments.

Drawing on the work of French philosopher Michel Serres, this research adopts the concept of quasi-object to attribute agency and intentionality to objects themselves. According to Serres, quasi-objects are those that "spatialize" and enable new social configurations or programmatic definitions by bringing together diverse subjects (Serres, 2007). This paper reinterprets the concept to suggest that quasi-objects align with the "other," indifferent to the disciplinary boundaries of art and architecture, and that curatorial practices, or "making (for) exhibitions," are realized through the agency of quasi-objects.

As a speculative concept, the quasi-object fundamentally redefines the relationship between subject and object. Originally developed by Serres and later expanded by his colleague, French thinker Bruno Latour, the concept challenges the conventional belief in a strict division between the "human" sphere (encompassing social structures, language, and culture) and the "external" sphere of factual objects (Latour, 1993). Latour and Woolgar (1986) argue that there is no pure nature or pure culture; rather, all entities are composites of karmas, collectives, or quasi-objects. Serres (1980/2007) describes quasi-objects as follows: "…This quasi-object is not an object, but it is one nevertheless, since it is not a subject, since it is in the world; it is also a quasi-subject, since it marks or designates a subject who, without it, would not be a subject…". A crucial aspect of this definition is that what circulates or enables circulation must also undergo and facilitate transformation. Latour posits that objects - dynamic, changeable entities - must impact and transform the elements that move them, thus perpetuating a cycle of transformation.

Luhmann (1995/2000) argues that quasi-objects serve a unique function by transforming and organizing social space. Performative contemporary art and architecture exhibitions, which invite participation, act as public spaces within specific temporalities. In a similar vein, Baurriaud (1998/2005) defines art as a relational practice that allows for diverse modes of interaction and creates a dynamic social experience. Extending Barriaud's notion of relationality - which he originally applies only to the interaction between the participant and the work - to include the components of the work and the space surrounding it allows us to conceptualize a "relational space."

This extension implies that agency is not solely held by the artist or architect, nor by the participant or viewer experiencing the work, but also by the tectonic elements that constitute the work and by the architecture that houses it. Each instance of space use, following its construction or installation, represents a new ontological configuration. Within this framework, quasi-objects are active participants rather than passive receivers. For instance, biennial pavilions and the architectural elements that construct them - essentially the tectonic objects involved in "making (for) exhibition" - can be regarded as quasi-objects with the capacity to "act." In the context of art-architecture coupling in exhibitions, quasi-objects possess the ability to transform spatial programs designed by artist-architects. They are not merely passive objects within the work-space-participant framework; rather, they act as integral components of the work itself, which, as Serres suggests, could not exist in its entirety without them.

The processual and performative nature of “making (for) exhibition,” with its transdisciplinary and transcategorial character, should not be viewed as the product of a singular object or the creation of a singular subject. Instead, it proposes that transversal works and exhibitions, understood as total projects, require multiple interpretations grounded in their material relations, which shape their very making.

In this context, the Venice Biennale - a major international exhibition - is analysed as an assemblage that brings together people, objects, and interwoven material and social relations across multiple spatio-temporal dimensions. This paper revisits the late 1960s and 1970s, a period of transformation when the Biennale shifted from an elite, rigid art institution to a more democratic, inclusive platform that embraced diverse fields from visual arts to architecture. This coupling of visual arts and architecture within the institution’s evolving structure, exhibition formats, and socio-spatial reach is seen as pivotal to the development of today’s distinct but interrelated Art and Architecture Biennales, establishing a model for the relational social sphere shaped by exhibition practices.

To understand the unique conditions that catalysed this shift in the Venice Biennale, this paper reexamines the Mulino Stucky “Project” and reflects on the influence of the Biennale’s first architect-director (or curator), who brought artists and architects together on a shared platform for spatial exploration.

4. An-other Exhibition: Reformed Venice Biennale and the Mulino Stucky “Project”

A transformative period in the Venice Biennale's history was rooted in the cultural and political upheaval following the events of 1968. These developments prompted a radical restructuring of the Biennale, challenging the elitist nature of art exhibitions and advocating for democratization and accessibility. The 1970s were pivotal in this evolution, marking the first experimental steps toward a more democratic and participatory Biennale. Szacka (2016) notes that various exhibitions and events in this decade served not only to showcase architecture but to create a platform for dialogue and exchange, thereby reimagining the discipline itself. This paper regards the 1970s - especially the 1975 exhibitions - as a fertile period where the convergence of art and architecture fostered a transdisciplinary discourse.

In 1968, the Biennale as an institution, and its exhibitions in particular, faced significant criticism and protests for being out of touch with the public. That year’s Biennale was closed due to occupations, and the 1974 Biennale was cancelled entirely. The upheaval of 1968 signalled the end of one era for the Venice Biennale and the beginning of a new one as "an open, permanent, and constantly evolving Biennale." The 1970s became an experimental phase, marked by the introduction of a “common theme” discussed by commissioners from different countries, with artists tailoring their work accordingly. This shift aimed to transform the Biennale from a trade-fair of independent national representations into a competitive international exhibition, establishing it as a hub for artistic production and research.

The four-year plan for the "new" Biennale, covering activities and events from 1974 to 1977, was presented and discussed in public meetings held on May 18-19 and June 3, 1974. The proposed reforms emphasized four core principles: (1) social engagement, (2) transnational

operation, (3) structural and methodological renovation, and (4) spatial expansion of the exhibitions. These reforms redefined the Biennale's role within the art world and beyond. Social engagement aimed to shift the Biennale from an exclusive art realm to a public sphere, fostering accessibility. Traditional sectors would be decentralized, allowing integration with broader cultural domains and supporting contemporary practices that transcended conventional mediums, moving from figurative to visual arts to embrace "other" artistic expressions. Consequently, the Biennale was reorganized into three departments: (1) Visual Arts and Architecture, (2) Cinema and Telefilm, and (3) Theatre and Music. The first department alone encompassed an expansive range of arts and architecture - including sculpture, painting, graphics, photography, industrial design, architecture, restoration, urban and landscape design - united under one interdisciplinary approach.

The Italian architect Vittorio Gregotti was appointed as the director of the Visual Arts and Architecture Department, overseeing the 1976 Biennale and its preparatory activities. As the first architect to head this department, Gregotti embraced interdisciplinarity, seeking to redefine architecture as a socially embedded practice that could address contemporary challenges facing the Biennale. His leadership prefigured the formal inclusion of architecture as a distinct discipline in the Biennale's 1980 structure - a development rooted in the socio-political climate of the late '60s and '70s. By decentralizing the exhibition objects themselves, architecture was positioned as both a spatial and social artefact, broadening the Biennale's research field to explore questions like, "How can architecture be exhibited?" and "Can exhibitions serve as intermediaries for exploring urban space, architecture, and the public sphere?"

As Martini (2011) notes, Gregotti sought to reform the Biennale from a retrospective showcase of recent art to an institution that fosters research. He emphasized a shift in curatorial focus toward the preparation and research phases, ultimately positioning the Biennale as a platform where the exhibition itself serves as a transdisciplinary and transcategorial medium for intellectual inquiry.

In 1975, Vittorio Gregotti organized a special edition of the Biennale centred on the Mulino Stucky exhibition, themed around "architectural proposals for the rehabilitation of the old and magnificent factory structure Mulino Stucky" on Giudecca Island. This exhibition invited participants through an open-call competition and workshop to reimagine the vast area of the former Mulino Stucky flour mill, located at the west end of Giudecca. The aim was not simply to treat Mulino Stucky as a unique site but rather as a springboard for exploring broader urban issues across Venice. The exhibition (Figure 1), running from September 15 to November 4, was described as an "international laboratory" (*un laboratorio internazionale*), where a "common theme became a ground for the convergence of art and architecture". This approach framed the city as both a workspace and a research site, treating space as a research object. Artists and architects alike used the exhibition space as a shared platform for cross-disciplinary thought, translating their concepts beyond conventional boundaries.

The Mulino Stucky exhibition marked a significant moment in the Biennale's history as the first to invite artists to work directly on-site, emphasizing *in situ* practices and what Gregotti called "making (for) exhibition" - an approach in which the exhibition itself served as a research tool and expressive medium. As Martini (2011: 168) notes, Gregotti saw this process as

"researching by making (for) exhibition". This notion of quasi-objects through various works exhibited at the Mulino Stucky event are explored, focusing on the materiality of these site-specific installations across different forms.

Figure 1. Mulino Stucky Exhibition. *Un laboratorio internazionale* (ASAC, 1975: A.V.106.1975.38b).

4.1. Line as Quasi-object: Conceptual Performativity

Italian artist Gianni Colombo contributed a conceptual piece titled *Considerazioni Elastiche Debordanti L'area* ("Elastic Thoughts That Overflow the Area"), which offered an interactive reflection on spatial relationships. Colombo included an aerial photograph of the Mulino Stucky factory in a collage labelled with "area and volume," representing the factory and its surrounding Venice through a contextual lens. His piece abstracted the factory's planimetric layout by stretching white elastic lines over nails on a black panel mounted to the wall, allowing viewers to adjust the elastic lines and create shifting spatial configurations (Figure 2). This interaction established a quasi-object within the exhibition: A form with agency that mediated between conceptual ideas of the factory and the elastic space produced in real-time by the viewer's adjustments (Figure 3). Through these continuously variable forms, the work blurred the boundaries between conceptualization and material production, situating the viewer as an active participant in its evolving spatial relationships.

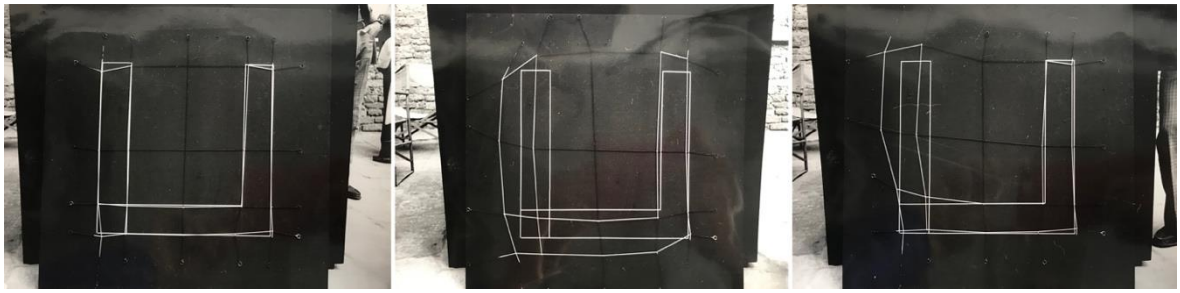

Figure 2. Gianni Colombo's elastic "space". Mulino Stucky Exhibition, Magazzini del Sale (ASAC, 1975: A.V.102.1975.6,6b,7).

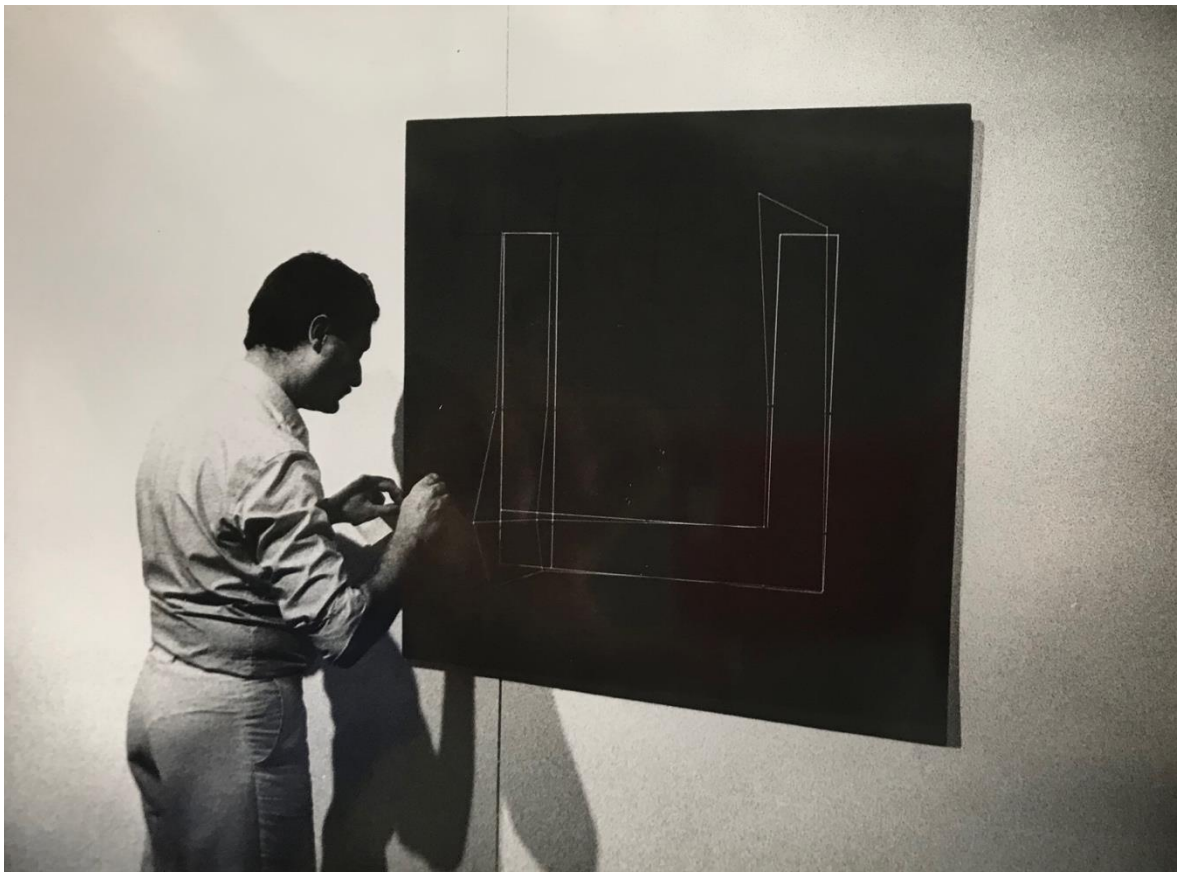

Figure 3. Gianni Colombo's work. Mulino Stucky Exhibition, Magazzini del Sale (ASAC, 1975: A.V.102.1975.8).

4.2. Platform as Quasi-object: Fictional Performativity

Dutch artist Mark Brusse, associated with New Realism and the Fluxus movement of the 60s and 70s, was a significant contributor to the Mulino Stucky event. His proposal envisioned a large pyramid-sculpture as a means to transform the exhibition space and engage viewers in a new visual dialogue with the historic factory. A 1:20 scale model of this pyramid was displayed in the exhibition (Figure 4), accompanied by Brusse's descriptive text in the catalogue, which invited viewers to imagine the experience of the structure at full scale. Brusse wrote: "This pyramid, covering a square with 14-meter sides and rising to 7 meters, will feature a 3.8-meter-high chair and 60 cm clogs floating on the water in front of the mill. Visitors can clamber up the pyramid for a splendid view...and, upon reaching the top, rest and gaze at both

the mill and others climbing the pyramid" (A proposito del Mulino Stucky / A propos of Mulino Stucky Exhibition Catalogue, 1975).

Brusse's conceptual pyramid proposed an innovative program of action, reconfiguring the viewer's relationship with Mulino Stucky by offering new perspectives from the pyramid's elevated platforms. The pyramid's layers, likened to an amphitheatre oriented in four directions, extended beyond sculpture to act as quasi-objects. The platforms embodied an agency, facilitating a physical and visual interaction with the surroundings. Through the act of climbing and viewing, Brusse's installation constructed an experience of "watching Stucky" that integrated the mill, the platforms as quasi-objects, Venice as the setting, and the active viewer in a cohesive, fictional exhibition environment.

Figure 4. Mark Brusse's installation. Mulino Stucky Exhibition, Magazzini del Sale alle (ASAC, 1975: A.V.105.1975.5b).

4.3. Room as a Quasi-object: Factual Performativity

The Italian architectural duo Mario Ceroli and Gianfranco Fini created a provocative installation for the Mulino Stucky event by setting up a container in Saint Mark's Square, resembling those used for transporting large-scale artworks, with the names of participating artists and architects inscribed on its exterior. Symbolic of carrying all the thoughts and visions for Mulino Stucky, the container was dramatically set on fire by Ceroli and Fini - an act recalling the fires that had marked the old mill's history. The half-burned container was then relocated in the Magazzini del Sale, the old salt warehouses, for the exhibition's final display.

Ceroli and Fini's work highlights the idea of "displacement" rather than containment, redefining the box's spatiality through its movement across various sites. Within the exhibition at the Magazzini del Sale, they presented a scaled model of the container along with four collage

panels exploring the displacement concept. These collages imaginatively replaced Mulino Stucky with the container, situating it within real photographs of Giudecca Island and pencil renderings that visually dominated the island's landscape.

The process and performative dimension of the work, rather than the container itself or its creators, reveal its significance. Archival documents and photographs portray the entire narrative of the container's journey through multiple spatio-temporal settings: the box's initial assembly and disassembly in the Giardini (Figure 5a), its transport to Saint Mark's Square on a vessel (Figure 5b), its temporary function as urban furniture where passers-by rested (Figure 6a), and the reassembled container (Figure 6b) serving as a secluded room for a conversation between Gregotti and Ceroli (Figure 7a). Firefighters then prepared it for ignition on a barge in the lagoon (Figure 7b, 8a) before its final installation in the Magazzini del Sale (Figure 8b).

This dynamic process transformed the box into a quasi-object that transcends its initial form. Each site-specific manifestation—whether in Saint Mark's Square, on the lagoon, or at the warehouse—generated new spatial and material relations among people, places, and objects. The box, through its journey and plural materializations documented photographically, created a fluid, transcategorial experience that went beyond the architects' original intent, engaging the public in a continuously evolving work.

Figure 5. a. Gathering materials in front of the English Pavilion at the Giardini di Castello (ASAC, 1975: A.V.107.1975.1b); b. Transportation of materials from Giardini to San Marco (ASAC, 1975: A.V.107.1975.2).

Figure 6. a. Before installation of the container transported to San Marco (ASAC, 1975: A.V.107.1975.3b); b. Installation of the container placed in San Marco (ASAC, 1975: A.V.107.1975.6).

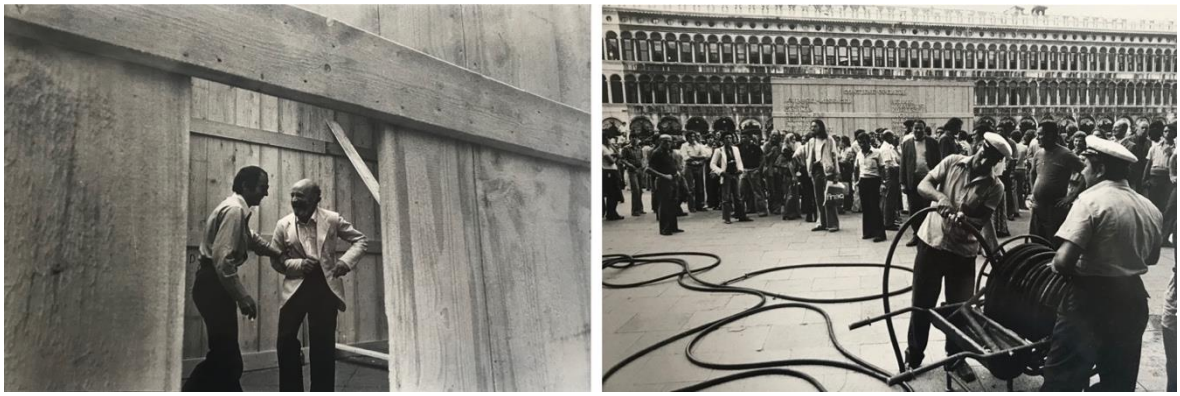

Figure 7. a. San Marco, Ceroli and Gregotti in the container (ASAC, 1975: A.V.107.1975.16b); b. Spectators in the background, container and firefighters in the front in San Marco (ASAC, 1975: A.V.107.1975.25).

Figure 8. a. The burning of the container in the lagoon (ASAC, 1975: A.V.108.1975.8); b. Re-installing the container in the Magazzini del Sale (ASAC, 1975: A.V.108.1975.12b).

The Mulino Stucky exhibition of 1975 exemplifies how the Venice Biennale of the 1970s served as a transformative platform for rethinking the intersections of art and architecture. While numerous participants contributed to this ambitious reimagining of exhibitions, this study focuses on the works of Gianni Colombo, Mark Brusse, and the architectural duo Mario Ceroli and Gianfranco Fini. Their projects - Colombo's interactive elastic lines, Brusse's experiential pyramid, and Ceroli and Fini's transformative container - highlight the performative and processual nature of the exhibition as a site of inquiry. These contributions foreground the concept of quasi-objects, with their ability to mediate relationships between art, architecture,

and public engagement, demonstrating the potential of exhibitions to generate new narratives and practices. By situating the Mulino Stucky exhibition within this broader framework, these case studies reveal how art and architecture intersected during this period to redefine exhibitions as spaces of interdisciplinary exploration and socio-spatial experimentation.

5. Conclusion

This paper reexamines the Venice Biennale as a pivotal site for reshaping exhibition practices, particularly within the “other” realm of architecture, where traditional representational media - scaled drawings, models, and photography - are decentralized. Instead, experiential and performative media emerge as central, transcending disciplinary boundaries to include the visual arts. This shift towards an “exhibition mode” of making redefines spatial agency, bridging the conceptual and factual while transitioning from static representational forms to immersive, processual experiences. Within this framework, the exhibition object is reconceptualized as a network of material and relational interactions.

The artistic reinterpretation of architectural space and tectonics during the 1975 Venice Biennale established a shared ground for art and architecture, embodying social and material dimensions that assign agency to both work and space. These interactions manifest a flat ontology, where processual and performative agencies coexist and interrelate. By framing exhibitions as ecosystems of human and non-human actors, the material and performative interactions among quasi-objects reshape spatial relations and challenge conventional disciplinary hierarchies.

Archival research and photographic narratives, particularly those documenting the installation processes at Mulino Stucky, reveal overlooked material processes and relational dynamics that transform the exhibition space. These quasi-objects - lines, platforms, and rooms – are suggested to emerge as mediators of conceptual, fictional, and factual performativity, transcending standard exhibition media and disciplinary limitations. By reexamining Venice’s urban complexity through site-specific works, this study situates the Mulino Stucky project within a broader discourse on art-architecture, showcasing how quasi-objects operate as tools for reimagining socio-spatial relations.

The findings underline how exhibitions can foster social transformation by promoting inclusivity and expanding disciplinary boundaries. In this case, quasi-objects function as active agents that reconfigure traditional object-subject relationships, creating new social and spatial narratives. This perspective contributes to the broader theoretical framework of transdisciplinary art-architecture by emphasizing the performative and relational capacities of exhibitions.

Future research could expand this analysis by examining other exhibitions that utilized quasi-objects or investigating contemporary applications of quasi-objects in architectural practice. Such studies would deepen our understanding of how these mediators shape and extend disciplinary practices and socio-spatial relations across different contexts.

Declaration of Ethical Standards

The article complies with national and international research and publication ethics.

Ethics Committee Approval was not required for the study.

Conflict of Interest

There was no conflict of interest between the authors during the research process.

Authors' Contributions

The author contributed alone to the article and takes full responsibility for the content and any modifications made during this process.

Declarations

The author takes full responsibility for the content and any modifications made during this process.

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Originality Report

According to the originality report obtained from the iThenticate software, this article's similarity rate is 6%.

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Research Article

The Role of Physical Factors in the Spirituality of Space-Human Relationship

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Human, Space, Spirit, Meaning.

Abstract

Human being, as a spiritual being, has been in communication with places since the moment he/she came into the world. This communication is not only to realise the act of sheltering; it can also be defined as a journey that one embarks on to make sense of the quality of life. Emotions, thoughts and reactions accompany the journey and this situation makes the concept of spirit visible. Getting to the essence of the meaning in the space and perceiving it in a spiritual dimension is a situation unique to the individual. Besides being special, it preserves its uniqueness and the person involves himself/herself in a dynamic process. Because understanding, interpreting and feeling is not a temporary process, it reveals its permanence with a difference each time.

The aim of the study is to discover the visibility of the spiritual state in the communication between human and space. During this discovery, the factors that help spiritual interaction have been extensively investigated; it has been seen that this hidden state is related to the visible physicality. However, as a result of the researches, the physical factors that stand out to play an active role in the spiritual effect were categorised. Afterwards, the study, which is dominated by abstractness, was supported with concrete examples and analysed with the determined factors. In line with these analyses, certain findings were examined and the physical factors that affect the spiritual situation in the space-human dialogue were evaluated.

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1. Introduction

The concept of human is indispensable in the design of a space and human being is a creature that has a place in the world not only with its physical existence but also with its spiritual existence since the spiritual existence of man reveals his own world of feeling. This shows that the uniqueness of human communication with life is closely related to his/her spiritual being. In this way, the person starts a dialogue with the space by reaching the meaning dimension of the space he encounters and experiences. Therefore, it is thought that the spiritual state plays a great role in the human-space relationship.

Spending time in places where people feel comfortable increases the quality of life. Because space is not only an area where a person spends a certain period of time in order to fulfil a function or an act of shelter, it is actually a concept that influences the person and leaves certain traces on him. In addition, the person personalizes the space, separates it from other spaces and begins to organize the perception of space according to himself/herself. This customizes the traces that space leaves on the person, activates the soul and creates a strong interaction. Thus, the person feels close to that space; for this reason, the spiritual existence of the human being is a criterion that should be taken into consideration in the space design process. Based on this situation, Melek, who investigated the factors that help the spiritual interaction of space and humans, stated that the process of meaning is shaped according to the perceptual state of the person and expressed that the first category of the classification is perceptual factors. In the same study, it was suggested that the perceptual factors examined include sub-headings such as time, memory, movement and experience. Secondly, sensory factors, which are at the forefront in making sense not only of space but also of life, were stated as another category of the classification. The fact that each of the senses, which are seen as an intermediary in the bond established with the space, has its own receivers and creates interaction differences has caused the senses of sight, hearing, smell-taste and touch to be handled separately. Finally, the idea that the tangible presence of physicality on the space gives rise to abstract concepts in the dimension of meaning has led to the category of physical factors (Melek, 2021). Considering that each category of this classification made by document/text analysis method is the subject of a comprehensive study, only physical factors were considered in this study. This choice was influenced by the fact that concepts such as spiritual, soul, mystical, which are defined as beyond physicality, are concepts that nourish the spirit. Thus, in order to discover the existence of the inner world, the visible physical factors in the outer world have created contrasts such as concrete-abstract, and visible-invisible. This relationship shows that opposites can also be mutually nourishing. While a physical factor can strengthen the spiritual effect, a meaning is attributed to that factor itself through the spiritual effect.

Qualitative research method was used in this study, which focused on concepts and theoretical framework. The studies and literature researches were effective in determining the sub-headings of physical factors suitable for the purpose. Factors such as form, space, light, colour, texture, which we frequently encounter within the scope of architecture, were handled within the framework of spirituality and this situation was supported by concrete examples. Thus, it

was thought that concrete examples would strengthen the narrative in this study, which is dominated by abstractness.

2. Spirituality and the Relationship between Spirit and Architecture

Spirituality is an internal state, and it makes its presence felt as a visual expression by means of experience and discovery rather than being directly visible. Even if one has knowledge about all aesthetic effects in a dialogue with a work of art, the dialogue would be incomplete without a spiritual orientation (Schmarsow & Fiedler, 2019). With the awareness that spirituality is a word that comes from the concept of spirit, various definitions of spirit have been encountered as a result of many researches. Firstly, the word spirit is defined as soul in the dictionary of the Turkish Language Association. Then, the Turkish Language Association, which also includes the philosophical definition of the concept, emphasises the spiritual state of the concept by describing it as 'essence, foundation, constructive non-material entity' (Turkish Language Association, n.d.). The definition or description of spirit, as a concept that includes both intellectual and sensory faculties that reveal human value and its uniqueness, has continuously developed throughout history. This is also supported by Aristotle's view that a human being who does not have a soul is no different from a pile of flesh and bones (Eroğlu, 2017). Not only Aristotle but also many philosophers such as Socrates, Plato and Plotinus included the concept of spirit in their works and thoughts.

Spirit and soul, known as two close concepts, have been presented as different concepts in contemporary philosophy. Studies have been carried out in the direction that the soul is a sub-layer of the spirit, a concept that feeds the spirit; thus, the view that the spirit is actually a concept beyond the soul was born. Hegel, one of the proponents of this view, drew attention to the concept of self-consciousness and argued that the spirit sheds light on a different discovery each time (Konur & Toprak, 2016). Thus, the different states of essence arising from the spiritual being of every human being will bring about a dynamic process and bring about a freedom of thought without end. It is thought that this free state can be summarised in the following sentences of Hegel.

"The country of the spirit is the country of freedom. Whatever constitutes the bond of human life, whatever is of value to human, is all of a spiritual nature" (Hegel, 2011).

Studies on spirit in the historical process have also shaped the ontological studies of Nicolai Hartmann, one of the 20th century philosophers. Arguing that existence is a product of the formation of matter and soul, Hartmann puts forward the theory of layers of existence. It is stated that each layer contributes to the formation of the upper layer and as a result, a direct relationship is established (Hartmann, 1968). According to Hartmann, the lowest layer is the matter (inorganic) layer. What comes after this layer, which is the basis of everything, is the organic layer, which can also be defined as the place where living beings are located. The situation where these living beings are a little more specialised is seen in the third layer, the psychic (soul) layer. The psychic layer is a more restrictive layer than the two layers below it, which includes humans and animals and does not include other living beings. Hartmann tells us that this specialised state is not the final point. This fourth layer (spiritual layer), which is fed by the state of the soul but carries a deeper meaning, is the last part of the layers of existence.

In this layer, the focus is on the spiritual aspect of the human being, such as his/her thoughts, perceptions, curiosities and emotions, rather than his/her physical existence. Each layer can interact with each other and provide a working environment for different disciplines. For example, while the first layer, the inorganic layer, is the subject of physics, the organic layer, which includes living beings, is the subject of biology. The soul layer, where living beings are limited and consciousness is at the forefront, is often the subject of psychology. Lastly, the fact that the field that deals with the spiritual layer is philosophy proves that the concept of spirit brings out the abilities of thinking, questioning and interpretation (Çelebi, 2014).

As a result of the researches done, it has been seen that the concept of spirit, which originates from philosophy, plays an important role in situations that appeal to the human soul. This situation has established a connection between spirituality and art. The artist, who aims to appeal to the human soul, creates an interiority with his art, thus achieving a meaning. Kandinsky, who carried out his works with this idea, argued that the sine qua non of art is spirituality and exemplified the relationship between interiority and soul by likening it to the beneficial relationship between the body and sports (Eroğlu, 2017). This inner state that exists in art allows for a spiritual state in architecture because it should not be forgotten that architecture is not only a formal discipline such as producing forms but also an art that can add meaning to space, provide people with an inner experience, and arouse various emotions such as excitement, peace, curiosity with the messages it gives. This situation creates the spiritual dimension of architecture (Figure 1).

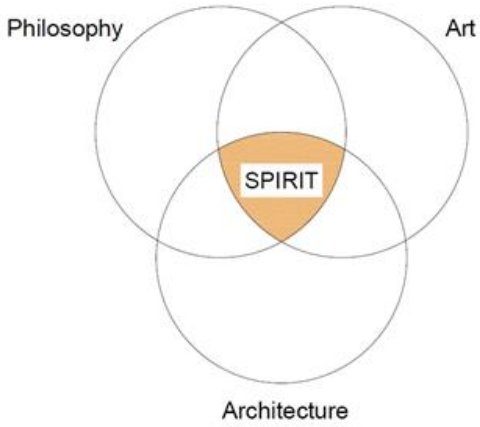


Figure 1. Common Concept in Philosophy-Art-Architecture Relations: Spirit (Created by the Author).

Rudolf Steiner, one of the important philosophers who includes the relationship between philosophy-art-architecture in his works, argues that the physicality of human beings is visible, but the existence of the soul is hidden as you go down to the essence. By associating this hidden state with the secrecy in art, Steiner states that the soul is the art in the essence of human, and according to Steiner, the perception of this art is realised through spirit because human exists in the concrete world with his/her body and in the inner world with his/her soul. With his/her spirit, he has an openness in both worlds (Steiner, 1987). Although Steiner did not have an architectural education, he worked as an architectural consultant for many buildings between 1908 and 1925. According to Steiner, who expressed architecture as an intuitive art, the form of the building serves as a shell and should give clues about the hidden power within

this shell. This hidden power is the spiritual expression in the perception of space (Geçer, 2010).

In addition to philosophers such as Steiner, architects who advocate this relationship were looked for in order to help comprehend the issue of spirituality in architecture. As a result of the researches, many examples for such architects were found and it was thought that their comments on the subject were supportive of each other. For example, Louis Kahn, who is world-renowned and has signed many important buildings, defined architecture as a spiritual quality and argued that this quality is a state of perfection (Tanrıyar, 2017). Juhani Pallasmaa, one of the world-famous names who shed light on the theoretical aspect of architecture not only with his buildings but also with his books, also supported this situation by saying that we define ourselves as full beings with embodied spiritual and that we can experience this definition in depth through meaningful architecture (Pallasmaa, 2018). Meaningful architecture, adding meaning to the space, dialogue established with the space, etc. are all expressions in which the spirit adds value, causing the person to establish a bond with the space where he spends time and to feel safe and peaceful. Considering this situation, there have been factors affecting the spiritual situation in the human-space relationship. The physical factors that help the realisation of this spiritual expression have been classified as a result of literature researches. Thus, it is aimed to draw attention to the abstract-concrete relationship by showing the existence of concrete factors to transfer an abstract situation.

3. Physical Factors in the Spirituality of Architecture

The exterior appearance of a building sometimes gives clues about the interior, and sometimes it may have a form that will make the interior even more intriguing. With this in mind, the physicality of the building can be defined as the first acquaintance with the building. This first acquaintance should contain a meaning, and this meaning is made visible by the shaping of the form. The concept of emptiness, which plays an important role in the formation of the form, sometimes indicates fullness and sometimes shows that absence can also mean something, which led to the concept of emptiness to be addressed in a separate sub-heading in this study. The concepts of light, colour and texture, which are parameters that directly affect human psychology and produce meaning and emotion in spaces, were determined as other sub-headings in line with the research conducted.

3.1. Form

Form is the formal expression of architecture and is a phenomenon that can carry meaning according to different views. This form of expression dates back to ancient times and has been evaluated from many different perspectives such as psychological, sociological, political, anthropological, cultural and religious. An example of this is that holistic thinking according to human measurements can be interpreted anthropologically, and soft/sharp etc. lines and geometry can be interpreted psychologically. Although it varies according to many factors such as period, time, culture and climate, form always aims to tell something, and the designer who is aware of this can freely transfer with form (Ünügür, 1989). With this freedom, the expression of spirituality can manifest itself even before entering the structure. The rate of this is determined according to how much curiosity the designer wants to arouse in the person.

Curiosity increases a person's desire to learn more about a place. Therefore, it can be said that this first encounter opens the door to positive or negative emotions. Along with curiosity, many contrasting emotions such as grandeur/simplicity, gloom/peace can be highlighted with form as an expression of the feeling in the interior.

When we talk about architecture, it is possible to talk about an art formed by forms. This art is fuelled by the strong bond established between form and essence (Eriç, 2011). Thus, each detail such as proportion, symmetry, rhythm, hierarchy, style, balance, which gives the form a character, establishes a relationship with the interiority of the form. Among these details, the concept of emptiness, which depicts the existence of absence, can strengthen spirituality by showing a mystical effect at the end of the internal relationship it establishes.

3.2. Emptiness

The definition of the concept of emptiness, which is often referred as absence and nothingness in architecture, is not so limited. Emptiness can be experienced, interpreted and even evaluated. The emptinesses that exist both on the facade plane and in the interior spaces of an architecture are actually parts of the design. In the design of a space, not only surfaces and objects but also emptinesses are designed. It can be said that the design of the emptiness is an extremely important and meticulously realised situation. Many factors such as location, size and shape affect the meaning of the emptiness. In the history of philosophy, especially in Eastern philosophy, the mystical characteristic of emptiness has been emphasised and concepts such as motion and interiority have come along with it. The definition of human in the philosophy of Taoism founded by Lao Tzu supports the mystical state of emptiness. According to Taoism, it is insufficient to describe human as a being consisting only of flesh and blood because the human being is a being that hides the concept of emptiness in itself and at the same time is a source of spirit and inspiration (Cheng, 2006). It is seen that there is a similar view in Yin Yang philosophy. Emptiness and fullness are concepts that support and complement each other. Each of them creates a motion by expressing the visibility of the other (Topala, 2018).

Emptiness, a word we see in various definitions of space, is frequently encountered in architectural language. Zevi's (2015) definition of space as ‘architectural emptiness’ and Rasmussen's (2018) definition of emptiness as ‘architecturally shaped space’ show that there is a mutual communication in the space-emptiness relationship. While this dual relationship shapes the dimension of meaning, it also makes spirituality visible. While this visibility can sometimes be associated with emptiness within the experiencer, sometimes it characterizes holiness, hope and peace. The concept of emptiness, which indicates the presence of fullness, brings with it various emotional states and expects the experiencer to attribute meaning to it with their spiritual being. Light, colour, texture parameters, which are among the other factors that are effective in making spirituality visible, also emphasize the message that architecture wants to give in its physicality.

3.3. Light

Light appears as a design input with much deeper meanings besides its illumination feature. The concept of light, whose existence, use and even diversity of use dates back to ancient times, is indispensable for the realisation of the ecological cycle and the continuity of life.

The direct relationship between light and life has caused it to take its place in architecture. Sometimes natural light and sometimes artificial light has provided legibility in architecture and affected the dimension of meaning. It is because light in architecture, in addition to its basic function, provides spiritual and mystical character gains to the atmosphere of the space by creating spatial dynamics. This spiritual value touches people's world of feeling (Kutlu, 2001). Many architects who realised their designs with this consciousness gave a special place to light in their buildings. In fact, light has been frequently included not only in buildings but also in the definitions of architecture, such as in the sentence addressed to an architect by saying 'the man who plays with light' while introducing Louis Kahn or in Le Corbusier's statement 'Architecture is the correct, skilful and marvellous play of masses under light' (Corbusier, 2013).

In addition to the individual role of light on the space, it also strengthens the aesthetic perception with its cooperation with shadow. This combination activates different emotions of the human being and leads to a variety of meanings attributed to the space. Since the proportional use of light and shadow will create a balance belonging to that space, soul identity comes to the fore and spirituality is strengthened (Altan, 1983).

3.4. Colour

The concept of colour, which exists in every moment of our lives, in everything our eyes see, sometimes in our sentences, sometimes in our thoughts, has always manifested itself in architecture. Colour also appears in the transfer of different emotions. While we use more vivid and contrasting colours in energetic, dynamic, accentuated spaces, in calm spaces we prefer softer colours that do not put pressure on each other but are in harmonic relationship. In this way, the colour palette is determined according to the function of the space, as well as the colour choice which depends on variables such as gender, age and culture. In addition to these, it also has a feature that affects the human soul even in the first encounter. In many psychological studies, it is seen that colours are an effective factor in conveying various feelings such as excitement, fear, peace, happiness and mourning. In general, colours have the power of expression and architects use this as an important tool in their buildings.

Eroğlu (2017), based on Kandinsky's relationship with colour, states that colour is noticed through the sense of sight and that this realisation turns into short-term physical sensations with a sense of curiosity. Then he adds to his conclusions that this superficial state can get rid of superficiality and deepen with the openness of the soul and thus leave permanent feelings in the person. Thus, the transformation of soul openness into spiritual sensation contributes to the architect's expression in space.

3.5. Texture

The concept of texture, which evokes a concrete contact while recognising the space, activates both visual and physical sensation as it brings along the material factor in space design. The

texturality of the material used integrates with the space and provides information about the space to the experiencer such as soft, hard, medium-hard, rough, and slippery. Thus, while texture offers a visual dynamic, it also makes sense of the space with the sense of touch (Erkartal & Ökem, 2015). This situation shapes the perception of the experiencer, and when evaluated from an architectural perspective, the texture of the space gives it a sense of identity. Thus, a space with essence acquires an identity. For this reason, it can be said that texture is not only a design element but also a feature that shapes the character of the space and directly affects its atmosphere (Kılıç, 2020).

The interaction of texture with colour and light within a space can also be observed. Strengthening the effect that the texture aims to convey is possible through the correct use of colour. Otherwise, the perception of the intended message may remain weak. In the relationship between texture and light, the structural expression of the building is also present. Most often, reflections arising from the combination of natural light and form occasionally make room for shadows, creating a textured effect in the space. This, in turn, provides visual depth and a mystical effect (Erkartal & Ökem, 2015).

4. Analysis of Examples

Since the subject of the study generally encompasses spirituality and deals with a situation where feeling is prominent, concrete examples were looked for to strengthen its comprehensibility. The research was conducted within the framework of the spiritual condition in the relationship between architecture and humans. In the selection of examples, firstly, it was paid attention that the designer has a certain philosophy. It is because the architect who tries to convey his philosophy with his structure sheds light on the richness of meaning. This meaning comes to light with the spiritual existence of the person. Therefore, the architects of the selected sample structures were also investigated separately. Details such as the designer's perspective on architecture and the concept of living space were at the forefront in the selection of examples. After creating a certain sample pool in this way, the effectiveness of the factors which are determined as form, emptiness, light, colour and texture considering literature researches made the sample selection a little more specific. Finally, the analyses of these determined examples were made and the analysis tables were named as Table 1, Table 2, Table 3, Table 4 and Table 5 respectively.

In the example analyses, the architect's philosophy was first addressed, and an attempt was made to understand the philosophy that influenced the creation of the building. Then, the physical factors that were thought to be influential in the spiritual relationship were interpreted in terms of their roles on the building. Finally, it was considered that the building 'breathes' with its experiencers, and thus, attention should be given to visitor comments. This is because it is humans who make the spiritual relationship visible, and the feelings of the person experiencing the space are very important in this context. For this research, visitor comments on the building analysed on the certified website tripadvisor.com.tr were examined. The steps of collecting data and analysing data using qualitative research method were carried out. In the comments reviewed, it was observed that opinions on the traces left by the building on its experiencers are a form of expressing spirituality. Based on this, a concept map was created using words related to spiritual expression, according to their frequency of use in the comments of

experiencers. The statements that contributed to the formation of concept maps were determined from the comments of 453 participants in Ronchamp Chapel, 1690 participants in Kimbell Art Museum, 4585 participants in Jewish Museum Berlin, 44 participants in Bruder Klaus Field Chapel and 299 participants in Kolumba Museum.

Table 1. Analysis table of Ronchamp Chapel (Created by the Author).

T1	RONCHAMP CHAPEL	Le Corbusier / Ronchamp, France / 1955
DESIGN PHILOSOPHY	"Architecture, outside and beyond construction problems, is an artistic reality, an emotional phenomenon... Architecture is the pure creation of the soul" (Corbusier, 2013). Le Corbusier	
PHYSICAL FACTORS AFFECTING SPIRITUALITY – Form		This chapel, with an exterior sculptural rigidity and an interior softness of spirituality, hides its essence for those who experience it inside. The strikingness is created by softening the rigid planes with small openings (Figure 2: Ronchamp Chapel, Le Corbusier, n.d.).
PHYSICAL FACTORS AFFECTING SPIRITUALITY – Emptiness		The minimal-sized openings on the facade, varying in dimensions and depths, guide the light that enters. Additionally, the gaps left between the wall planes cause the structure to reject stability, pushing the experiencer towards infinity (Figure 3: Ronchamp Chapel, Le Corbusier, n.d.).
PHYSICAL FACTORS AFFECTING SPIRITUALITY – Light		Light is the focal point for this chapel. The concept of light, which is small in quantity but effective, produces a dim environment with shadow plays and feeds the mystical atmosphere intended to be created inside (Figure 4: Ronchamp, 2017).
PHYSICAL FACTORS AFFECTING SPIRITUALITY – Colour		The limitation of the small but deep emptinesses opened on the facade with coloured glass causes the light that enters the interior to play with colour, and the spiritual dimension of the light-colour combination emerges (Figure 5: Pinterest, n.d.).
PHYSICAL FACTORS AFFECTING SPIRITUALITY – Texture		In order to emphasize the spiritual appeal of the softness of the use of light, a hard texture is preferred and the strikingness of contrasts is seen in the texture and light combination (Figure 6: Ronchamp, 2017).
CONCEPT MAP	art mysticism harmonic atmosphere masterpiece magical influential exciting attractive amazing instil peace contemplation meditation calm/relaxing	

Table 2. Analysis table of Kimbell Art Museum (Created by the Author).

T2	KIMBELL ART MUSEUM	Louis Kahn / Texas, ABD / 1972

DESIGN PHILOSOPHY

"The poet thinks about beauty and existence. But poetry is only a donation, a less poetic donation... The product of architecture is nothing more than a gift of the spirit of architecture and its poetic beginnings" (Tanrıyar, 2017).

Louis Kahn

PHYSICAL FACTORS AFFECTING SPIRITUALITY

Form		The soft, curved lines and juxtaposition of the units that make up the form show that the building has a serene character, far from chaotic perception (Figure 7: Fracalossi, 2011).
Emptiness		The museum, which is generally seen to have a closed form, has thin emptiness details between the wall and the roof. This detail balances the existing rigid and fixed attitude by giving the building a sense of freedom and lightness (Figure 8: Kimbell Art Museum, Louis Kahn, 2015).
Light		The use of light within the structure is at a level that does not tire the eye but makes its presence known and turns it into a work of art, almost exhibited (Figure 9: Daylight & Architecture, n.d.).
Colour		The calm colour on the exterior of the building gives way to a silver colour on the interior, extending from the top plane to the wall plane. The brightness of the silver colour surprisingly emphasizes the perception of dynamism in the interior combination emerges (Figure 10: Kimbell Art Museum: The original Louis Kahn building, 2014).
Texture		The diversity of materials that influence the character of the building also shows the unity of different textures. Textural materials such as concrete, glass, metal and oak play a common role in conveying the calmness and elegance of the building (Figure 11: Kimbell Art Museum, Louis Kahn, 2015).

CONCEPT MAP

influential gem great atmosphere treasure peace
breath-taking fascinating unbelievable masterpiece
contemplation amazing art architectural
the calmness of the place admirable

Table 3. Analysis table of Jewish Museum Berlin (Created by the Author).

T3	JEWISH MUSEUM BERLIN	Daniel Libeskind / Berlin, Germany / 1999

DESIGN PHILOSOPHY

"The language of architecture is mysterious because, like any other language, it is composed of a material reality, but it speaks a spiritual language and this spiritual language is the world itself. It is about the sky, it is about the earth and memory. It is about the fire of dreams" (Şenol, 2005).

Daniel Libeskind

PHYSICAL FACTORS AFFECTING SPIRITUALITY

Form		The strikingness of the concept of the building is also expressed formally. The zigzag form of the building, with its sharp lines, refers to the sharp meaning in the interior space (Figure 12: Jewish Museum Berlin, n.d.).
Emptiness		The emptinesses encountered in the structure expresses the emptiness left by emotions such as helplessness and uncertainty (Figure 13: Bianchini, 2024).
Light		The small illuminations in the structure dominated by darkness convey the meaning that there can be hope even in desperate situations (Figure 14: Jewish Museum Berlin, 2017).
Colour		The pessimistic atmosphere of the building is supported by the colour factor. The darkness dominated by black and its tones bring negative emotions to the forefront combination emerges (Figure 15: Bianchini, 2024).
Texture		In one of the corridors that must be travelled through in order to progress through the building, there are many iron plates in the shape of faces, and the experiencer consciously causes an uncomfortable contact by stepping over them (Figure 16: Avcı, 2013).

CONCEPT MAP

spatialization of emotions dramatic effective
splendid enormous appalling
spooky atmosphere inspiring
extraordinary blood-curdling
a living museum

Table 4. Analysis table of Bruder Klaus Field Chapel (Created by the Author).

T4	BRUDER KLAUS FIELD CHAPEL Peter Zumthor / Mechernich, Germany / 2007		
DESIGN PHILOSOPHY	"I like the idea of constructing spatial sequences that guide and accompany, but at the same time release and seduce, the internal organisation of my buildings" (Zumthor, 2010). Peter Zumthor		
PHYSICAL FACTORS AFFECTING SPIRITUALITY	Form		The structure, which has simple, plain and clear lines, aims to focus on the feeling by preferring not to give a clue about the interior (Figure 17: Bauza, 2018).
	Emptiness		The emptiness at the top allows contact with the sky, while the many small gaps in the facade allow light to enter the interior, inviting a play of light in the interior (Figure 18: Bauza, 2018).
	Light		The sacred effect of the light filtering in through the emptiness on the hill and the mystical effect of the light filtering in through the gaps on the facade show that the light factor establishes an association with the function of the building (Figure 19: Aydın, 2007).
	Colour		The first encounter with the building reveals the modesty of the light sand colour, while the interior is dominated by the dark colour with a contrasting effect. This emphasises the mystical atmosphere in the interior (Figure 20: Moody, 2019).
	Texture		This chapel, which has undergone many processes such as gathering tree trunks together, moulding, pouring concrete, burning the wood during the construction phase, has finally created its own texture with the fumigation method and emphasised the concept of essence (Figure 21: Fahey, 2020).
CONCEPT MAP	peace, fascinating, silent power, the connection between heaven and earth, extraordinary, mental rest, influential, a special atmosphere, breath-taking, deep, unique, calm, inner beauty		

Table 5. Analysis table of Kolumba Museum (Created by the Author).

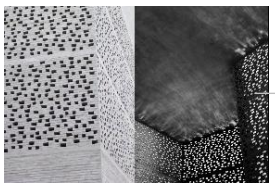
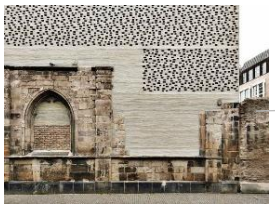
T5	KOLUMBA MUSEUM	Peter Zumthor / Cologne, Germany / 2007

DESIGN PHILOSOPHY

"The buildings that impress us always transmit a strong emotion to us through their space. They surround and activate in a special way the mysterious emptiness we call space" (Zumthor, 2010).

Peter Zumthor

PHYSICAL FACTORS AFFECTING SPIRITUALITY

Form		In addition to its imposing structure, its special form, which continues the old, hints that the interior blends history with modern lines (Figure 22: Kolumba Museum, Peter Zumthor, 2010).
Emptiness		The emptinesses opened on the facade to invite natural light inside serve to distribute the light in the interior space. In addition, this detail, which softens the hardness of the concrete, facilitates the realisation of internal balance (Figure 23: Peter Zumthor, Kolumba Museum, Cologne, 2012).
Light		Thanks to a proportional and shaded lighting, the visible/invisible parts of the history in the interior meet the experiencer in a dim way. While accompanying the experiencer, the light also reinforces the theme of tranquillity (Figure 24: Cordan, 2019).
Colour		The colour scale preferred in the building was chosen in a way not to suppress the ruins. Thus, the old-new unity dominant in the building is tried to be conveyed to the experiencer with the colour factor (Figure 25: Kolumba Museum, Peter Zumthor, n.d.).
Texture		Texture integrity has been realised with the new additions without disturbing the texture in the ruins. In addition, the natural light filtering in through the emptinesses in the facade offers a distinct texture effect that can be felt, but not tangible, to those who experience the interior space (Figure 26: Kolumba Museum, Peter Zumthor, 2010).

CONCEPT MAP

very attractive hidden meaning deep
architectural jewel matchless stunning
peaceful and refreshing mixed feelings
fascinating special incredibly impressive

5. Findings

Within the scope of the study, 5 sample buildings were evaluated in which the physical factors determined within the scope of the study affect the spiritual effect in the relationship between space and people. Similar and different impressions were obtained in these 5 examples selected as a result of extensive research. For example, while some buildings reveal the experience they will offer at the first encounter, some buildings do not give any clues from their external form, preparing the person for a complete surprise. Thus, it was observed that the spiritual state in the buildings is sometimes visible and sometimes preferred to be more hidden.

It is also the case that even structures with different functions can resort to the same factor in order to offer a certain feeling to the experiencer. For example, while light exists as a metaphor of sacredness in a religious structure, it can appear as a product that instils feelings such as peace and hope in a museum structure, and in some cases it can appear as a product that shows that the exhibited thing is almost itself.

It is seen in the analysis of the examples that one factor is much more effective by combining with other factors. For example, it can be said that the effect of light on the building shows its effect much stronger by combining with the factor of emptiness and sometimes even with the factor of colour. This situation can also be seen in many relationships such as form-emptiness, light-texture, and colour-texture.

The architect's design philosophy, which is also included in the analysis of the examples and is considered to have an important place within the scope of this study, shows how the abstract situation becomes concrete. This situation leads to thinking, interpretation and evaluation. In the concept map consisting of visitor comments in the last part of the analyses, it was seen that the person used words as a means of expression in his/her spiritual state and it was striking that different people frequently used the same words. It was also observed that the visitor comments coincided with the philosophy of the architect. Thus, the importance of the architect's philosophy in the communication between space and people was emphasised once again. As seen in the concept maps, sometimes a place was likened to a valuable object such as jewellery. This shows that the person wants to strengthen the strong emotional state he/she experiences in his/her expression. It should not be forgotten that every experience is a unique situation, and feelings and expressions support this uniqueness.

6. Conclusion

The depth of the concept of spirit and thus the fact that people experience spaces not only with their physical existence but also with their spiritual existence is the starting point of this study. With this starting point, some physical factors that allow the meanings waiting to be discovered in the spaces to be more visible have guided the study and some inferences have been made based on the analyses made within the framework of the determined factors.

Emotions and thoughts play an active role in the perception of space. This active situation brings about a rapprochement and a spiritual interaction. With the spiritual effect, meaning production is realised. In the study, it is argued that understanding and being understood is not only a human-specific situation, but the space is also in such an expectation. The person approaches the space with the predominance of curiosity and dialogue begins. This dialogue

takes place in the form of an abstract and mutual communication. What the space wants to tell the person is hidden in the details and these details are discovered with the spiritual being of the person. It is possible to talk about a cycle created by a mutual dialogue in the form of the feelings that the space conveys to the experiencer and the meanings that the experiencer attributes to the space. This situation proves that the space is opened to rediscovery every time and exhibits a dynamic attitude.

An environment consisting of meaningful architecture allows the person to establish a bond with the space, to improve the quality of life and to discover the concept of self-consciousness in the dialogue established in the space. Otherwise, the person feels himself/herself in an insecure environment and becomes disconnected from the space. However, experiencing the space not only causes various emotions in the person, but also adds spirit to the space. Therefore, spirit is indispensable in the dimension of meaning in places.

This study, which shows that there is originality in external expression, subjectivity in interpretation, and essence in the main purpose, aims to understand the importance of spirituality in the human-space relationship. In the realisation of this goal, various perspectives and different external expressions were presented with architectural examples, and in this case, the factors determined within the scope of the study drew attention to the effective and striking role of spirituality in addition to their functional roles on the building.

Many buildings, such as the examples analysed in the study, aim to touch the soul of people and try to be memorable. Places that first call people, then welcome them inside and then leave themselves completely to interaction, have existed so far and should continue to exist. As the number of these structures increases, more experiences will come along with them. Thus, more interpretations, more diverse analyses will bring architecture closer to human beings, and the embrace of human and space spirits will be made more visible.

Declaration of Ethical Standards

The article complies with national and international research and publication ethics.

Ethics Committee Approval was not required for the study.

Conflict of Interest

There was no conflict of interest during the research process.

Authors' Contributions

The author contributed alone to the article and takes full responsibility for the content and any modifications made during this process.

Declarations

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